

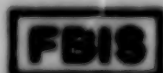
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24 September 1980

Worldwide Report

LAW OF THE SEA

No. 129



FOREIGN BROADCAST INFORMATION SERVICE

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24 September 1980

WORLDWIDE REPORT

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RUSSIAN FISHING FLEET TO USE NEW ZEALAND REPAIR BASE

Christchurch THE PRESS in English 6 Aug 80 p 3

[Text]

PA Nelson
Nelson will be the repair base for most of the big Russian fishing fleet which will work in New Zealand's 200-mile zone in the next 12 months. The repair work will earn the Nelson engineering company of Anchor Dorman, Ltd, between \$300,000 and \$1 million, according to the firm.

Up to 18 trawlers and factory ships crewed by about 800 Russians are already scheduled for survey and repair work at Nelson this year.

The general manager of Anchor Dorman (Mr W. J. Butters) said yesterday that an agreement for the repair work had just been negotiated with the Russians and a copy of it was on its way to Moscow for final signing. The agreement might be renewed after 12 months.

The Russian vessels are involved in joint ventures with three New Zealand companies, Fletcher's, Sanford's, and Amalov.

A Russian fleet interpreter, Mr Victor Khiger, said the repairs were originally to have been made at Singapore, but the 20 days travel each way meant that much fishing time would have been lost.

"We then looked at Dunedin but because drydocking could not be done there we have to sail to Lyttelton, again wasting fishing time," he said. "At Nelson we can do both in one place."

A fleet engineer, Mr Ilya Siris, said he wanted the repair work to be done at Nelson because he had been impressed with emergency repairs made by Anchor Dorman to one of his trawlers three years ago.

CS01 5200

NEW ZEALAND BARS JOINT-VENTURE SHIPS FROM FISHING ZONE

Christchurch THE PRESS in English 15 Aug 80 p 2

[Text]

PA Wellington
Joint-venture fishing vessels will be excluded from the controlled hake zone off Hokitika from midnight last night for 14 days.

Announcing the move yesterday, the Minister of Fisheries (Mr MacIntyre) said the exclusion would give local fishermen an advantage over joint-venture vessels during the hake pre-sprawning accumulation.

Joint-venture ships would be limited to fishing in waters west of and deeper than the 650-metre line after returning to the controlled area, he said.

"Research into the hake fishery has shown the need to protect the resource, and

so a quota of 3000 tonnes has been set," Mr MacIntyre said.

"It has also been determined that the pre-sprawning accumulation occurs round the Hokitika Trench between July and September.

"Daily catch reports from fishermen and fisheries scientists on the James Cook indicate this run has now started. The controls, announced recently after consultation with all sectors of the industry, have accordingly been implemented," Mr MacIntyre said.

Companies using joint-venture ships in the area have been advised and been told the area from which they are excluded.

CS01 5200

OFFICIALS EXPLAIN N-WASTE DISPOSAL PLAN AT GUAM MEETING

Japanese Explanation

OW140419 Tokyo KYODO in English 0403 GMT 14 Aug 80

[Text] Agana, Guam, 14 Aug (KYODO)--Japanese officials explained a Japanese plan to discard low-level radioactive waste in the South Pacific to leaders of South Pacific countries at their two-day summit meeting opening here Thursday. The summit meeting opened at Hilton Hotel here in the morning to discuss Japan's nuclear waste dumping plan in the South Pacific area with 11 leaders attending. Prior to the meeting's opening, several anti-nuclear demonstrators with placards gathered in front of the hotel to protest the Japanese plan amid mounting opposition in the South Pacific nations.

In his opening speech, Governor Paul McDonald Calvo of Guam welcomed the Japanese governmental mission headed by Hiroshi Goto, deputy chief of the Atomic Energy Safety Bureau of the Science and Technology Agency, but he expressed firm opposition to the Japanese plan.

Goto and another agency official explained Japan's basic policy for peaceful utilization of atomic energy, the nuclear waste dumping plan and its safety. Japan plans to discard about 10,000 drums of low-level radioactive waste from nuclear power plants in the sea about 900 kilometers north of the northern Marianas starting in the autumn of next year. Following the test dumping, Japan plans to carry out full-scale dumping of several thousands of drums of nuclear waste the following year. European countries have been dumping low-level nuclear wastes in the Atlantic for more than 10 years.

The Japanese officials stressed the Japanese plan involves no danger of pollution to people and the environment while saying Japan would carry out the plan in conformity with standards by the International Atomic Energy Agency (IAEA).

In the meeting for Thursday afternoon, the South Pacific leaders and the Japanese Government mission will hold a question-and-answer session concerning the Japanese plan.

Nuclear Dumping Plans Protested

OW151255 Tokyo KYODO in English 1222 GMT 15 Aug 80

[Text] Agana, Guam, 15 Aug (KYODO)--Leaders of South Pacific nations Friday adopted a resolution calling for suspension of the Japanese Government's plan to discard low-level radioactive waste in the South Pacific. They adopted the resolution signed by nine leaders at their summit meeting closing its two-day session here Friday evening. The resolution said the South Pacific nations would grope for all possible legal measures to frustrate the Japanese plan.

The resolution did not imply boycotting of fishery negotiations between the South Pacific nations and Japan of which Japan was most in fear. The resolution stressed in the preamble that the South Pacific area depends on fishery industry and tourism and criticized the Japanese plan for posing serious and continual threats to biologic and economic preservation of fishery resources in the Pacific. The resolution called on Japan to suspend the plan until technical safety of the plan is proved so that marine resources should not be damaged by the dumping of nuclear waste.

The resolution also called for suspension of a Japan-U.S. joint plan to study possibilities of building a used-nuclear fuel storage base in the South Pacific. The resolution did not call for unconditional suspension of the Japanese plan as a result of Japan's maneuvering efforts behind the scenes during the summit meeting.

Hiroshi Goto, a Science and Technology Agency official who headed the Japanese mission to explain the Japanese plan at the summit meeting, told reporters Japan would attach importance to the resolution leaving room for study for safe securement of the nuclear waste dumping plan.

CSO: 5200

INDONESIAN FISHERMEN INTRUDE IN AUSTRALIAN WATERS

Perth THE WEST AUSTRALIAN in English 4 Aug 80 p 10

[Article by Norman Aisbett: "Illegal-fishing Problem Grows"]

[Text] A fragile little sailing-boat glides on a high tide towards a desolate island not far from the Kimberley coast.

Before long it is out of sight, skillfully moored amid the camouflage of mangrove trees at the water's edge.

Tiny, wiry figures on board the craft ensure that the disappearance is complete, covering the decks with leaves and tying foliage to the mast.

Unnoticed, another Indonesian fishing party has made an illegal landing on Australian soil.

There is unlikely to be any further sign of activity till the tide's recession leaves the boat high and dry. Then the dusky fishermen will leave cover and move expertly about the island's exposed reef platform, using primitive dugout canoes at times to skirt the shallows when necessary.

They are in search of trochus shell--the lure of their long and risky haul down into Australian territorial waters.

The shell has been heavily fished in traditional Indonesian fishing grounds but is still available in relatively big quantities in the King Sound region of WA.

It is the core of an escalating problem costing the Australian Government millions of dollars a year to counter.

It is also indirectly contributing to another serious situation.

The little ocean travellers are also certain to have wreaked further destruction to bird life on Australian-owned islands between Indonesia and the WA coast. Sea birds with their eggs, along with fish, are the prime sources of food on these voyages.

According to the chief inspector of the WA Department of Fisheries and Wildlife, Mr Neil McLaughlan, the Indonesian craft are the main reason for immense expenditure on aerial surveillance (up to \$7 million a year) of the coast and the use of naval patrol vessels based at Darwin for fisheries-inspection duties.

Further evidence of the cost is the charter by the Commonwealth Department of Health of the fishing boat Axion for surveillance work in the Buccaneer and Bomparte archipelagos. What started in April as a short-term charter costing \$850 a day has been extended to October because of Indonesian fishing activity in the area.

This expense comes on top of regular fisheries patrols around the network of coastal islands. The patrols have worked extensively in recent years to warn the Indonesians that they are courting arrest and prosecution.

Two Indonesian skippers who wept like children after having their craft confiscated by a Koolan Island court on Thursday have learnt that the threats were not made lightly.

Five Warnings

One of the skippers had been warned five times previously.

Fisheries and quarantine officials now think that word of the court action, which has virtually left the impoverished fishermen and their families without a source of income, will filter back through the Indonesian "fleet."

Mr McLaughlan said there was no problem off the WA coast about seven years ago. Till then the only known intruders had been the occasional apologetic village fishing party swept off course by wind or currents.

But from about 1973 Indonesian fishermen had begun to intentionally find their way to the fertile WA waters. They now constituted what was considered a commercially-oriented invasion. It was at its peak in the early part of the year and about August.

Mr McLaughlan said that 62 sightings of Indonesian craft were made in Australian waters off WA in one seven-week period this year--equal to all the sightings for 1973.

Three hundred Indonesian fishing boats had been boarded off WA and hundreds more sighted.

He said that the Indonesians posed a serious threat to the Bardi Aboriginal people at One Arm Point in King Sound. About 300 of these people operated a small fleet of 25 craft to work the islands in the mouth of the sound for trochus shell.

The trochus shell which brings \$1100 a tonne in Australia for the Bardi, beckons the Indonesians, who have reduced stocks of the shellfish to an unviable level at the Ashmore and Scott reef areas between Australia and Indonesia.

There have been conflicts. Recently, an Indonesian party went ashore at Sunday Island, off One Arm Point, to grab trochus shell left bagged on the beach by Aborigines.

The Indonesians were chased out to sea by the Bardi people, some of whom got close enough to throw a piece of iron through the sail of the raiding craft.

The landings by Indonesians are seen as a major danger by quarantine authorities. The authorities fear three disease threats in particular-- foot and mouth disease, which could cause crippling damage to the north west cattle industry, rabies and Newcastle disease, which is a threat to the poultry industry.

Poultry

Indonesians sometimes carry live poultry on their boats as pets or as a source of food.

Mr McLaughlin, is alarmed by the other aspect of the Indonesian problem, the slaughter of island bird life.

"When they go on to an island they often smash every egg in sight," he said. "The idea is that when they come back the next day, any eggs lying around then will have to be fresh and therefore edible.

"Sometimes they don't use the smashing method. They collect up all the eggs and stack them in heaps.

"It is common for them to break the wings of very young birds.

"The young birds are fed for a time by the mature birds, so they are likely to be alive if and when the fishermen pass by the island again. It is then just a matter of rounding up the maimed birds for food."

Mr McLaughlin said that some species of bird life, unique to certain island groups were probably under threat of extinction through these tactics.

The Indonesian problem is complicated by a memorandum of understanding signed by Australian and Indonesian officials in 1974 as a result of the emerging situation.

The memorandum allows Indonesian fishermen to continue their activity around some distant shoals and islands in Australian waters.

A tongue of water extending south from Timor is available to them for fishing but landing rights are not included.

There are no rights south of the designated islands or shoals in this area. Virtually, it means that no Indonesian craft should ever come within about 130 km of the Kimberley coast.

But they do and there have been many warnings.

The Fisheries Department even went to the trouble of aerial dropping special plastic buoys containing maps showing allowable areas and messages in Indonesian, warning of severe action for breaches. The buoys fitted with streamers to attract attention, were dropped alongside the craft.

Indonesians in hundreds of craft boarded by fisheries inspectors have been handed the maps and instructions.

CSO: 5200

KOREANS SEEK BETTER FISHING RIGHTS FROM NEW ZEALAND

Wellington THE EVENING POST in English 8 Aug 80 p 6

[fscorp]

A ROW between Korea and New Zealand over fishing rights was papered over yesterday at parallel businessmen's and politicians' meetings.

The Koreans are angry that their licensed fishing boats are restricted to the poor fishing grounds around the Antipodes Islands. New Zealand policy is to grant better grounds to joint venture boats and domestic fishermen.

The Koreans have put heavy pressure on New Zealand over the issue, saying it is a waste of time coming to New Zealand. They have also complained that even they could not find enough fish to fill their quotas. The New Zealand Government refused to refund a proportionate part of the fishing licence fees they had paid.

After meeting the Minister of Foreign Affairs and Overseas Trade (Mr Taithe), the visiting Republic of Korea Minister of Commerce (Mr Han Byung Hyun) would only say that they had had "a satisfactory

answer" over the disputed fishing allocation.

The communique issued by the two trade Ministers said the Korean side had "stated their view" and the New Zealand side had "noted" the Korean objections and said "changes would be considered".

The topic was also raised at yesterday's Korean-New Zealand Business Council Meeting. Its communique said later "The Korean delegation expressed its gratitude to the New Zealand side that New Zealand had allowed Korean boats to fish.

The New Zealand businessmen were asked to help the Koreans get a better allocation in future.

LOW SQUID PRICES IN JAPAN AFFECT NEW ZEALAND FISHING QUOTAS

Auckland THE NEW ZEALAND HERALD in English 19 Aug 80 p 16

[Report by HERALD nation reporter]

[Text] The Ministry of Agriculture and Fisheries faces problems in establishing its foreign squid allocations this week because of depressed squid prices and an apparently saturated market in Japan.

There is growing pressure from the New Zealand fishing industry for the removal of a 10 per cent tariff on New Zealand squid catches in Japan.

The foreign allocations are likely to be announced in about a week, according to the ministry.

Last season was a bumper one locally. Squid figures took more than 15,000 tonnes, but prices on the Tokyo fish market are said to be about half that of the previous season because of a huge influx of Argentine and Chilean-caught squid.

Some 35 jiggers were licensed but the catch was unrestricted.

Viability

The problem the ministry faces is trying to gauge the Japanese market situation next season, and in particular its effects on the New Zealand joint ventures which

have already been granted for the coming season.

New Zealand squid may be as abundant next year but the ministry has a responsibility to ensure the joint ventures remain economically viable.

Japan-caught squid is already subjected to a 10 per cent tariff, whereas the Japanese limited catch, taken under the foreign quota system, is not.

Much of the Argentine and Chilean squid has been trawl-caught and its quality is considered less than that of the New Zealand jig-caught catch.

Foreign squid fishermen were given a New Zealand trawl allocation for squid last season of 15,700 tonnes, an increase of about 14,000 tonnes on the previous season.

If there is a general movement towards trawl-caught squid it creates greater demands for New Zealand involvement in this type of

fishing as fishing boats used for finfish trawling could turn to this work.

Jig-fishing boats can only be employed in New Zealand waters on a seasonal basis for squid fishing, and this makes them relatively un-economic unless local fishermen can do what the Japanese do and work squid seasons in the Northern and Southern Hemispheres.

The chairman of the Fishing Industry Board, Mr M. M. Cairns, said yesterday there was no chance of the industry's closing the door to Japanese squid fishermen just to protect New Zealand interests.

Subsidies

Under the Law of the Sea code New Zealand was obliged to allocate the fish it could not take itself.

He said there was even more reason now why Japan should drop the 10 per cent tariff on New Zealand joint

venture-caught squid on that it could outpace an squid which against the catches of Japanese licensed squid jagers.

Mr Curran said that the board took the view that New Zealand fishermen should be more greatly involved in catching squid, and if that meant the Government had to subsidize those operations during a spell when the market was depressed, then that should be so.

He pointed out that many of the foreign boats operated with subsidies and the New Zealand operations should not be disadvantaged in comparison.

The total New Zealand squid catch is now fairly insignificant compared with the total catch taken by foreign and jager venture boats.

At least one major fishing company in New Zealand is considering processing squid. It believes there are better opportunities for local involvement in this area than in catching them.

Joint venture-caught squid is now only landed and processed in New Zealand. Squid is processed in a variety of ways in Japan and many of the processes are simple and non-labour-intensive.

STEPS TO EASE TENSION BETWEEN INDIAN-SRI LANKAN FISHERMEN URGED

Nadras THE HINDU in English 1 Jul 80 p 13

[Text] Ramaswaram. June 30.

Fishermen of the Ramaswaram on Saturday appealed to Mr Thomas Abraham, Indian High Commissioner in Sri Lanka to help evolve a mutual agreement between the two Governments so that Indian and Sri Lankan fishermen could carry out their activities in peace.

Such an agreement was necessary because of the restricted fishing area now available for Indian fishermen, especially after the handing over of the 'Katcha Theevu' to Sri Lanka, they said.

Mr Abraham, while pointing out that the fishing rights of the countries had clearly been demarcated, however, said the Government was aware of their problems. He would take up the matter with the Foreign Ministers of the two countries.

Mr Abraham later told newsmen that the fishermen had complained of harassment by the Sri Lankan navy. They had told him of an incident in March last when the Sri Lankan navy had seized 64 Indian fishing boats. Of them 63 boats were returned but one boat sank due to "negligence on the part of the Sri Lankan navy" while tugging the boat to one of their ports.

The Fishermen's Association here led by Mr P. Arulanandan Fernando and Mr Alankaram told the High Commissioner that they were faced with shortage of fishing beds in their own area which has been curtailed following the handing over of 'Katcha Theevu' to Sri Lanka. If no steps had taken to help them, 25,000 fishermen would have to starve. [as published]

To the complaint that Indian fishermen were "stealing" the nylon nets of Sri Lankan fishermen, the association said, they had no use for nylon fishing nets because their method of fishing was different. But sometimes, Sri Lankan nylon nets were damaged accidentally by Indian boats. However, they were promptly handed back to the owners, they added.

They complained of acts of 'piracy' by the Sri Lankan navy the result of which was financial loss up to Rs 30 lakhs.

The Collector of Kannad district Mr V. Madhavan Nair, who along with the Superintendent of Police Mr K. G. Dinamani, received the High Commissioner at the Rameshwaram port. [as published]

The office-bearers of the association told newsmen that diesel rationing introduced in the past two weeks had added to their problems. They said each boat on an average needed 150 litres diesel a day but had diesel only to last 10 fishing days in a month. They were thus forced either keep their boats idle or purchase diesel at double the price.

CSO: 4220

BRIEFS

JAPAN-AUSTRALIA NUCLEAR WASTE--Japanese and Australian officials had talks in Canberra today on Tokyo's plans to dump nuclear waste in the Pacific next year. From Canberra (Graham Dobell): [Begin recording] Japan plans to conduct a trial dumping of up to 10,000 (cement-cased) drums containing low-level nuclear waste. The four Japanese officials are visiting Canberra as part of a tour throughout the Pacific trying to assure nations the operation would pose no dangers. At the talks at the Foreign Affairs Department in Canberra, Australia neither opposed nor endorsed the Japanese plan. The foreign affairs spokesman said Australia had expressed opposition to the Pacific region becoming a site for indiscriminate and uncontrolled disposal of nuclear waste. Dumping should take place only with the strictest safety measures. He said officials had pointed to the deep concern felt by South Pacific states and called on the Japanese to take note of this. The Japanese replied that the trial would be supervised under the OECD's stringent surveillance mechanism for dumping of radioactive waste. It will also meet the provisions of the convention on marine pollution. [end recording] [Text] [OW191419 Melbourne Overseas Service in English 0710 GMT 19 Aug 80]

AUSTRALIA SCORES JAPAN--Canberra, 9 Sep (AFP)--Australia should publicly condemn Japan, as it did France, for dumping nuclear waste in the Pacific Ocean, according to the Federal Labor spokesman for urban and regional affairs, Mr Tom Uren. Mr Uren said the Japanese Government's decision to go ahead with the dumping of nuclear waste north of the Mariana Islands, "smacks of a colonialist attitude towards the governments and people of Pacific island nations." He said that just as Australia played a leading role in opposing French nuclear tests in the Pacific, it should be in the forefront of moves to prevent the Pacific once more becoming a dumping ground. "Sadly the Fraser government is more interested in trying to make the quick uranium dollar than in representing the interests of the Pacific region and its people," he said. If a Labor government wins office in the federal elections to be held later this year, Tom Uren would probably become the minister in charge of nuclear energy. [Text] [OW090306 Hong Kong AFP in English 0240 GMT 9 Sep 80]

AUSTRALIA APPROVES JAPAN'S DUMPING PLAN--The federal opposition has accused the government of betraying the interests of the people of the Pacific by approving nuclear waste dumping by Japan. The opposition spokesman on minerals and energy, Mr Keating, said the government had abandoned all concern for the environment and rejected worldwide respect earned during its stand against the French nuclear weapons testing in the Pacific. Australia has given conditional approval to a Japanese plan to dump nuclear waste in the north Pacific. The Australian Government approval is conditional on the dumping complying with the strictest safety measures and relevant international agreements. [Text] [OW101307 Melbourne Overseas Service in English 1130 GMT 10 Sep 80]

ROK, JAPAN OPERATIONS AGREEMENT--Seoul, 15 Sep (HAPTONG)--A ranking South Korean Foreign Ministry official said today both South Korea and Japan have satisfactorily settled their bilateral dispute over Korean fishing in waters off Japan's northernmost island of Hokkaido, one of the most sticky issues between the two neighboring countries since 1977. The official said an accord calling for mutual restriction by the two nations of their fishing operations in each other's waters, namely, Japan's Hokkaido and Korea's Cheju Island, which will put an end to the long-standing dispute, will be put into writing at the eighth meeting of working-level fishery officials the two governments to be held in Seoul September 17 and 18. Fishery chiefs of the two governments will then meet to confirm the written accord in the form of a memorandum during their meeting here on September 19 and 20, the official added. The projected agreement reportedly calls for the reduction of the number of Korean Alaska pollack fishing vessels operating off Hokkaido from the present 19 to 16 to 13 in exchange for Tokyo's assent to confine its fishermen's operations off Cheju to January through March each year with 70 fishing vessels. [Text] [SK150125 Seoul HAPTONG in English 0102 GMT 15 Sep 80]

CSO: 5200

FISHERMEN REPORTED FEARFUL OF FOREIGN POACHERS

Calcutta THE STATESMAN in English 5 Jul 80 p 7

[Text] Tuticorin, July 4.--Alongside the southern breakwaters of the new harbour here is anchored "Yung Shin--32," a 120-ft Taiwanese trawler valued at Rs 1 crore, guarded by armed police. It is a trophy won by I.N.S. Shakti of the Southern Naval Command, in an encounter with a fleet of foreign trawlers in the high seas off the Gulf of Mannar in the early hours of Monday. The 18-member crew of "Yung Shin" has been handed over to the civil authorities here.

Equipped with all modern facilities such as radio-telephone and fish finder, the trawler had a 70-tonne cold storage capacity. Food stored in the vessel were sufficient to feed its 18-member crew for six months. Mr C. S. Venkateswaran, Deputy Director of Fisheries, said here today that eight tonnes of the letherinus variety of fish, valued at about Rs 70,000, was removed from the trawler.

For the fishermen of the Gulf of Mannar coast in Tirunelveli district of Tamil Nadu setting sail to catch fish is like going to war. It is not that they are afraid of the rough seas or the strange creatures of the ocean. What they dread most is poaching by foreign trawlers whose crew often rough them up and seize their nets together with their valuable catch. At times they even sink the boats of local fishermen.

When a group of fishermen set out from Manappad village, south of here, on June 24, one could discern the fear writ on the faces of their women-folk and children. The men came back the following morning not only empty-handed but with their costly nylon nets torn to bits by the intruders. The matter was reported to the Fisheries Department and the District Collector who in turn contacted the coast guard station at Mandapam.

The coast guards entrusted to patrol the eastern sea coast extending from Kanyakumari to Calcutta is woefully ill-equipped for the task. It has at its disposal just two boats and both are now under repair.

The plight of the Manappad fishermen was brought to the attention of Captain K. P. Gopal Rao, naval officer-in-charge, Port St. George, Madras, who tried to seek the help of the Tuticorin Port Trust to make available some vessel which could be pressed into service to intercept the intruding trawlers. [as published] But none was available.

Eventually the naval headquarters in Delhi were alerted. It authorized the Southern Command, based in Cochin, to deal with the problem. The flag officer commanding-in-chief despatched INS Shakti on Sunday. It reached the Gulf of Mannar on Monday.

Seeing it was a large ship, the foreign trawlers took shelter in shallow waters, four to five miles off the Tamil Nadu coast. A helicopter was dispatched to establish the identity of the intruding vessels. After making sure of their foreign origin INS Shakti fired a few shots to bring the trawlers out in the open sea.

Two of the trawlers sped in the north-easterly direction towards Sri Lanka waters and two others moved swiftly southwards while the fifth one, caught in between, was intercepted by the naval vessel and seized. It had on board about 15 tonnes of fish.

Tricolour

The trawler was flying a tricolour closely resembling our national flag, apparently to hoodwink the authorities. Except for its captain who knew a smattering of English the rest of the crew spoke only Chinese. The trawler was part of a Taiwanese fishing fleet.

According to information gathered from the captain, Taiwan has about 3,500 fishing trawlers. It takes them about 15 days to reach Indian waters where they remain for two to three months at a stretch. Their daily catch is transferred to a "mother ship" which keeps off the territorial waters. The mother ship is not only equipped to refuel the trawlers and replenish their victual but also has a mini canning plant.

Attack on Indian fishermen by foreigners has been a recurring problem both in the Gulf of Mannar and the Palk Straits. In the Straits the offenders are mostly from Sri Lanka.

Only last week the fishermen of Rameswaram appealed to Mr Thomas Abraham, Indian High Commissioner to Sri Lanka, to help evolve a scheme whereby fishermen of the two countries could carry on their vocations in peace. They pointed out that in one month alone, the Sri Lanka Navy had seized 64 of their boats.

Mr P. Arulanandan Fernando, secretary of the Rameswaram Verkottu Fishermen's Association, said about 700 mechanized boats were fished in the

Palk Straits mainly for prawn, much in demand in foreign markets. Each boat is manned by six or seven men who set out in the afternoon and begin deep-sea fishing after sun-set. They return home by dawn.

Each boat catches 10 to 15 kg of prawn. A kilo of prawn fetches about Rs 80. Mr Fernando said Sri Lanka navy men suddenly appear on the scene, order the fishermen to follow them, and once they are within Sri Lanka waters, board the vessels and loot their catch.

The fishermen told Mr Abraham that they were faced with shortage of fishing beds in their area. The shortage followed the handing over of Katcha Theevu to Sri Lanka. They were prepared to lease the waters around Katcha Theevu from the Sri Lanka Government. If no steps were taken, about 25,000 fishermen in Rameswaram would not be able to earn their livelihood.

One of the salutary effects of Monday's naval operation is the disappearance of Taiwanese trawlers from the Gulf of Mannar where fishermen have been able to venture out into the sea without fear of losing their catch and gear.

CSO: 5200

FOREIGN TRAWLERS' INTRUSION: FISHERMEN ON STRIKE

New Delhi PATRIOT in English 29 Jun 80 p 4

[Text] Madras, June 28. Fishermen of the coastal district of Tirunelveli in Tamilnadu have refused to go to the sea for fishing in protest against the intrusion of foreign travellers into Indian waters.

Taiwanese vessels understood to have entered the sea, 15 kms from Tuticorin and destroyed nylon nets worth about a lakh laid by the local fishermen.

Official sources admit foreign trawlers operating in Indian waters in the Gulf of Mannar and off Punnakayal and Tuticorin and claim they have called for intense patrolling by the coast guards.

The Tamilnadu Country Boat Fishermen's Association has in telegram to Prime Minister and State Chief Minister to take immediate action to prevent such intrusions.

Anti-Price Rise

The Tamilnadu units of the CPI and CPM are launching a State-wide anti-price rise campaign from Sunday.

Public meetings are to be held throughout the state to mobilise the people against the burdens imposed on the common man by the Central budget, according to Mr K. T. Raju, member of State secretariat and railwaymen's leader.

The joint campaign which opens tomorrow marks another important stage in the unity in struggle that is fast developing between two Communist parties in Tamilnadu.

The joint campaign plans were worked out at a meeting of the leaders of the CPI and CPM in Madras. Among those who took part in the discussions were P Manickam, K T Raju and Nallakannu from CPI and a Balasubramaniam, Sankarathala, Nallasivam from the CPM.

TRAWLER OVERFISHING OF PORTULACA RUDICOLA CAUL

Bombay THE TIMES OF INDIA in English 5 Jul 80 p 11

[Article by Gautam S. G. Vohra]

[Text]

BOMBAY, July 4: The fish catch brought in by the traditional craft as well as mechanised boats operating off the coast of Maharashtra has declined. Four years ago the catch was over 201,000 tonnes. It fell to 264,000 tonnes in 1977. Last year it was approximately 255,000 tonnes.

Except for Bombay Dock, the fishermen are getting a lower quantity of all other varieties of fish from the sea. The mackerel catch decreased from 1,944 tonnes in 1976 to almost half that amount last year. The sardine catch has dropped even more steeply — from 4,340 tonnes to approximately 930 tonnes last year.

This unhappy situation has arisen entirely because of overfishing by trawlers in the waters near the coast. Approximately 1,000 trawlers operating from Maharashtra have thrown the Kolis, the traditional fishermen living along the state's coast, out of their jobs. In fact, this community is gradually vanishing. Whereas there were 70,000 Kolis residing in Greater Bombay in 1951, now there are not more than 30,000. The number of kulwadias, spread out from Colaba to Juhu, has declined from 85 to 15.

The picture at the national level is as dismal. While the India Ocean can yield 4.5 million tonnes of fish, over the years the fish catch has been declining. It fell from 1.4 million tonnes in 1975 to about 1.2 million tonnes last year.

FANCY PRICES

The approximately 16,280 trawlers owned by private parties, which are equipped to operate as far as 40 km. from the coast, often go no further than 500 metres. The trawler-owners are interested essentially in shrimps and lobsters as these fetch fancy prices in the export market. Both are to be found near the water surface not too far from the shore.

The trawlers sink nets that are tied to boards into the sea. These scrape the sea bed and damage the fish eggs. Besides, the "turbidity" created by

trawlers forces fish to flee to other areas.

There are another 100 trawlers that use purse seine nets. These concentrate on the variety of fish found between the surface and middle-level depth of the ocean which include mullet, sardine and pomfret.

This method of fishing is "super-efficient" and thereby harmful to the ecological balance. The purse seine do not let even the young escape.

Like the trawlers, the purse seiners are capable of fishing in the offshore zone (50 metres to 200 metres depth). But they too operate (within the in-shore zone 0 metres to 50 metres depth).

Even the deep-sea trawlers, which operate between 50 and 200 (exact figures are not available) and are designed for the deep-sea zone (beyond 200 metres depth), operate within the in-shore zone.

Thus increasing mechanisation of the fishing industry has resulted in many of the 6.5 million fishermen who use catamarans and country boats for bringing in their catch, losing their livelihood.

To protect the livelihood of traditional fishermen as well as prevent the fish catch from declining waters countries are phasing out the use of trawlers. Norway took this step several years ago. The Dutch government has spent 14 million guilders to buy out 100 trawler-owners so that they do not use their capital intensive boats for fishing.

The European Economic Community has formulated a law, prohibiting fishing vessels with a gross capacity of more than 20 h.p. from operating within 12 km. of the coast.

The Indian government has passed no such law and taken no precautions. It has authorised the Coast Guard to check foreign vessels from fishing in the India Ocean. Since the Coast Guard is not adequately equipped for the task, Taiwan, Japan, Soviet and Korean trawlers cheerfully rob our fish wealth.

JAPAN

NUCLEAR WASTE TO BE DUMPED IN PACIFIC IN REINFORCED DRUMS

OW050423 Tokyo KYODO in English 0353 GMT 5 Sep 80

[Text] Tokyo, 5 Sep (KYODO)--Japan plans to dump low-level radioactive waste matters in the Pacific in drum cans after they are solidified in cement, Science and Technology Agency officials said Friday. They were commenting on press reports from New York which said a professor at the University of California's Santa Cruz campus has found through his studies that similar drum cans dumped in waters off San Francisco by the U.S. have leaked radioactivity. The officials noted that under the methods used by the U.S., the waste matters were not completely solidified and a considerable amount of radioactive elements were contained per drum can.

Unlike the U.S. formula, they said Japan plans to solidify the waste matters in cement and dump the drum cans containing them in 6,000-meter-deep waters some 900 kilometers southeast of Tokyo Bay. The Japanese plan, however, is being strongly opposed by authorities and residents of South Pacific islands.

Ichiro Nakagawa, director general of the agency, said Thursday that Japan wanted to start carrying out the plan in the autumn of 1981 and that further efforts will be made to secure the understanding of the residents of Micronesian islands and Japanese fishermen. The agency as well as the Nuclear Safety Commission have concluded that even if the drum cans break before reaching the sea bottom and leak the radioactive elements, effects on human beings through fish will be of an extent which can be disregarded. Based on tests conducted on land, they do not believe the drum cans will break.

CSO: 5200

BILL INCREASES PENALTIES FOR MARINE POLLUTION

Auckland THE NEW ZEALAND HERALD In English 30 Jul 80 p. 1

[Report by HERALD's Wellington Bureau]

[Text] Shipowners and others who cause pollution will now be liable to fines of up to \$100,000, or twice the previous maximum penalties.

They will also be called on to pay the expenses of cleaning up pollution under a bill introduced in Parliament yesterday by the Minister of Transport, Mr McLachlan.

The Marine Pollution Amendment Bill also imposes a levy on oil landed in New Zealand, which will go to an international fund for compensation for oil pollution damage.

Vessels taking delivery of more than 1,000 tonnes of oil a year will be required to make a contribution towards the fund.

Further sections of the bill prevent a parent company from avoiding liability by importing more than that amount through several subsidiary companies.

Liability Cover

The bill extends the present provisions of the Marine Pollution Act, 1974, to cover the incineration at sea of waste and other matter.

Under the bill, the owner of a ship carrying any pollutant is held liable to obtain insurance to cover financial liability to cover his liability for pollution damage.

Such ships must have a certificate of insurance or other financial security, and it must be produced for inspection by officers such as harbourmasters.

The bill allows the ship to be held to recover both on poll fund, and the cost of cleaning up pollution.

Limit Terms

Sections of the present act allow for fines varying from

\$200 to \$20,000, and these are doubled under the bill introduced yesterday.

Mr McLachlan said the doubling of the fines would maintain their value in real terms.

The Hon P. M. Coleman (Opposition) said the bill was a logical development in line with international practice.

Mr M. E. Moore (Opposition - Papanui) asked whether the bill would apply in a "deadweight" in environmental law, the Antarctic.

Mr McLachlan said it would not apply, apart from New Zealand ships polluting the sea in international waters.

The bill was referred to the statutes revision committee for consideration.

LEGAL BLOCKS HOLD UP HUNT COMPANY'S OFFSHORE OIL SEARCH

Wellington THE EVENING POST in English 19 Aug 80 p 1

[Report by energy reporter Mike Field]

[Trans]

URGENT legislation is being prepared by the Government today to get over legal blocks which have apparently halted oil prospecting work in the Great South Basin.

Oil company executives and Government officials are due to meet at Parliament this evening to look at a draft of the Petroleum Amendment Bill Number Two which will be presented to Parliament later in the week.

"Post" inquiries indicate that the major problem has centred on the Great South Basin where a partnership of the Texas-based Hunt Petroleum and Philip International and the Petroleum Corporation of New Zealand held a prospecting licence.

Although the licence was granted in April, the "Post" understands that Hunt declined to recognise that they even held a licence until they received certain under-

takings from the Government.

These undertakings were to come in the form of an executive deed between the Government and Hunt-Phillips Petroleum and would set out in precise form the rights and obligations of each party.

Hunt, who drilled eight deep offshore wells in the Great South Basin in the mid-1970s, were understood to be unhappy about making a multimillion dollar investment without having all the legal issues tied up.

Hunt have publicly stated in the past that they are hopeful of finding oil and gas in the Great South.

A Hunt spokesman in Wellington today declined to comment on any changes to the Petroleum Act, although he was prepared to confirm that they were making "significant progress" in talks with the Government.

The "Post" also understands that a seismic research ship is likely to arrive in New Zealand waters within a month.

It could be used both in the Great South and the offshore Taranaki licence area held by Shell-Lurgi Todd consortium.

New Zealand Petroleum are understood to be interested in using the drilling ship off the West Coast.

EXCLUSIVE ECONOMIC ZONES IMPACT FISHING IN SOUTH CHINA SEA

Kuala Lumpur BUSINESS TIMES (in English) 9 Jul 1982 p 8

[Article by Bruce Benton]

[Text]

Aid. of the coastal states of the South China Sea region soon will have 100-mile Exclusive Economic Zones in their areas. This is a result of the consensus reached on extended fishing limits at the UN Third Law of the Sea Conference.

Practically all the waters of the South China Sea will thus be under national control, with a profound effect on the region's fisheries. The countries have, in effect, decided to exploit their own resources and to control the activities of foreign fleets off their shores.

The region is already in a favorable situation for coping with the new responsibilities and benefits deriving from the EEZs. This is because of the United Nations Development Programme (UNDP)'s South China Sea Fisheries Development Programme, which has been operating for the past five years by the Food and Agriculture Organization of the United Nations (FAO). The Programme has its headquarters in Manila.

A new phase of this programme, starting early in 1980 and lasting five years, will deal primarily with the problems created by the establishment of the EEZs. The project is sponsored by the governments of

Brunei, Hong Kong, Indonesia, Malaysia, Philippines, Singapore and Thailand.

The South China Sea project recognized the need to achieve efficient management of fish resources in the region and to establish a regional mechanism to take over the FAO activities in the future. The project has an estimated budget of US\$1.5 million for a two-year period starting in 1980. UNDP is expected to approve the funds.

FAO and UNDP assistance to the South China Sea governments has taken various forms. In Thailand, emphasis was laid on the expansion of freshwater prawn production, pond management techniques, and pole and line tuna fishing. In Malaysia the focus also was on aquaculture, that is, small-scale brackish water fish farming, reservoir fisheries development and the growth of seaweed farming. The Canadian International Development Agency (CIDA) is contributing \$1.5 million to a project known as "small-scale fisheries development Kuala Besut" for 1980. This will be implemented by FAO under a funds in trust arrangement.

Singapore is one of the countries that, since the conclusion of a Fisheries

Training Centre project in 1978, has required no further FAO assistance. It has, however, been able to participate regionally and assist other countries with some of its advanced techniques, particularly in aquaculture. A large UNDP-FAO seafaring training project is now underway, focusing on small-scale fishing development in Indonesia and on a brackish water shrimp culture research and training project at Japara.

In the Philippines, the FAO Programme has launched an aquaculture development and training project and is also studying a pilot project on sea farming to assist small-scale village fishermen. Funds were also donated for specialists to assist in the Municipal Fisheries Development Programme of the Philippines.

A three-year project with the title "Rehabilitation of Fish Seed Farms and Fish Culture Development" has been functioning in Lau since April 1978 with a UNDP contribution of US\$37,000. The main objective is to assist the government in expanding five existing fish seed farms. This is the first fisheries technical assistance ever given to Lau under UNDP-FAO.

Since June 1978 a

three-year shrimp culture project, with a UNDP contribution of US\$1,775,000, has been operating in Vietnam to assist the government in strengthening the Institute for Shrimp Culture in Haiphong. In July 1979 the Technical Cooperation Programme of FAO also allocated US\$55,000 for the rehabilitating and equipping of a fish seed farm in Hanoi.

Exclusive Economic Zones provide an unprecedented opportunity for coastal states to manage and utilize their resources. The waters of countries like Malaysia, and to some extent those of the Philippines and Indonesia, Cambodia and Vietnam, were formerly fished by other nations. The problem of replacing the foreign fleets with local vessels now arises. But it is not easy for a developing nation to harvest resources that are distant from the coast and in remote areas. In the South China Sea region, EEZs provide a tremendous challenge. Indonesia, Malaysia, the Philippines, Vietnam and Democratic Kampuchea must all increase their fishing.

To achieve this, funds must be mobilized. In addition, the drastic shortage of trained manpower for fishing, processing

and distribution must be met.

There will be a tendency for catches to decline during the EEC transition period and foreign vessels will still be required, either from neighbouring countries or from the developed countries of the Asia region. International collaboration through joint ventures and bilateral agreements will also be required.

Not all countries stand to benefit from EEC. Some, like Thailand, have lost their access to the fish off other nations' shores. As a result, greater attention is being paid there to aquaculture.

Regional banks, such as the Asian Development Bank, as well as regional groupings, such as EEC and Asean, are today devoting greater attention to fishery matters, and FAO's South China Sea programme has enjoyed close cooperation with banking institutions during its activity.

Demand continues to outstrip supply in the South China Sea countries so that most states are still net importers of fish. Increasing the future fish catch is thus one of the most important challenges for the region. At the present rate, a catch of 7 million

metric tons might be expected in 1988 but the total demand will be for 8 million. The total potential of the region is estimated at 11-12 million tons. The ultimate potential envisages the doubling or tripling of "cultured" fish to 3 or 3.5 million tons. But this cannot come about until the end of the century.

Member governments of the South China Sea Project are giving priority to the improvement of the coastal rural fisheries. Many people are involved in these fisheries but there are very limited financial and human resources available for their development. FAO has therefore recommended that pilot scale projects be implemented as test centres that could form the basis for large-scale investment projects.

There will be national pilot scale projects in Indonesia, Malaysia, Philippines and Thailand through a trust fund arrangement between CIDA and FAO. These projects represent some US\$ million in external support. The projects include fishing technology, processing, aquaculture, resource surveys, boat development and training. The World Bank is expected to support a large-scale investment

project for the development of fisheries in coastal villages. Other projects are planned.

Other components of Phase III of the Project include training programmes in the use of acoustic equipment for the direct assessment of fish stock. The programme will also assist in management measures where stocks have been over-exploited, e.g. in the Gulf of Thailand, the coastal waters of Peninsular Malaysia, the Malacca Strait and the north coast of Java. The programme is also increasingly involved in tuna resource assessment. The dynamic development of tuna fisheries in Indonesia and the Philippines has led to the need for a coordinated tagging programme to monitor distribution in the Celebes/Moro Sea. — FAO Feature

BRIEFS

TERRITORIAL SEA LIMIT--Singapore will exercise its right to extend its territorial sea limit up to a maximum of 12 nautical miles in the light of international developments. It will also establish an exclusive economic zone. In a statement today the Foreign Ministry said since 1878 Singapore had adhered to the concept of a 3-nautical mile territorial sea. In certain areas Singapore can extend its territorial sea beyond 3 nautical miles and can also claim an exclusive economic zone. The ministry said the precise coordinates of any extensions of the territorial sea and the establishment of any exclusive economic zone will be announced at an appropriate time. Should such extensions and the establishment of an exclusive economic zone overlap with claims of neighbouring countries, Singapore will negotiate with these countries with a view to arriving at an agreed delimitation in accordance with international law. [Text] [AK151507 Singapore Domestic Service in English 1130 GMT 15 Sep 80]

CRO: 5200

'CLARIN' DISCUSSES LAW OF THE SEA CONFERENCE IMPLICATIONS

Buenos Aires CLARIN in Spanish 5 Aug 80 p 10

[Editorial: "The New Law of the Sea"]

[Text] The UN Conference of the Law of the Sea is once again meeting in Geneva. Since 1973, the conference has been attempting to draw up a treaty which will cover all aspects of the subject in a unified way, including classical aspects of the topic, innovations in the developing technology and an updated look at strategic problems.

The lengthy periods of time devoted to its deliberations by the conference are attributable not only to its extensive and important agenda but also to the criterion that the new Law of the Sea be the product of the consensus of the organized international community. To this end, instead of votes, the conference resorts to continuing negotiation of differences in small groups of expert delegates.

The subject which produced the greatest confrontations--so much so that at one point it threatened to compromise the results of the conference--was the deep seabeds and the economic exploitation of the minerals which they contain. The highly industrialized countries have developed the technologies required to reach great depths and to vacuum up the "nodules," which are spherical clusters of metals, many of which are of strategic importance. Similarly, industrial processes to separate the metals have been developed, as a preliminary step to the utilization of that new and important source of raw materials.

The conflict arises precisely out of the fact that the sea, beyond the limits of national sovereignties, is considered by the United Nations to be the common heritage of mankind. This concept was arrived at through extension of the prior concept of the open sea, which was applicable to navigation. The fact is that in our time the oceans are something more than mere communications and trade routes. Nations are reaching out over the waters and are broadening their jurisdiction over areas which extend 200 miles from shore and over the biological and mineral resources to be found in their waters and submerged continental shelves. Oil from the seabed is being

extracted, as in the case of the North Sea, through the association of several countries. The United States has authorized its companies to legally engage in mining in the deep seabeds, a unilateral decision which is considered provisional until a universal standard is substituted for it. And futurologists are beginning to talk about "floating cities," with thought being given to the development of the platforms used for the extraction of oil in order to accommodate town dwellers cut off from land (like dissident minorities), who will perhaps make claim to an area on the high sea on the basis of their aquatic settlement.

However, it is not necessary to give such free rein to the flights of our imagination in order to point out the expectations being generated by the oceans and the emerging tendency to appropriate them. Because of this, the Geneva Conference has an unquestioned importance, particularly for countries with an extended coastline such as our own, a country, moreover, which since the 1940's has been a pioneer in the definition of an updated Law of the Sea.

The subject of the seabeds is also significant because on the basis thereof claims are being prepared by nations which have a right to share in the resources of those seabeds and by others which, in addition, have the modern technologies to exploit them. And the subject lends itself to the creation of a new and powerful international authority which would be responsible for administering and harmonizing the rights of nations and companies in the exploitation of ocean minerals.

The equitable resolution of these points would be a substantial contribution to the equilibrium of the new world which already can be discerned on the horizon.

8143

CSO: 5200

DECREE ISSUED REGULATING FOREIGN VESSELS' OPERATIONS

PA012109 Paris AFP in Spanish 1549 GMT 31 Aug 80

[Text] Quito, 31 Aug (AFP)--The Ecuadorean Government has banned industrial fishing by vessels with foreign flags within a 60-nautical mile area both around the mainland and the islands.

In order to safeguard the rational exploitation and conservation of the fishing resources available in Ecuador's territorial waters, the government has issued an executive decree setting several norms on fishing by foreign vessels.

According to the document, foreign ships shall pay the following fees to operate in Ecuador's territorial waters:

--\$2,000 for a fishing license valid for one calendar year.

--\$160 per net registered ton for a fishing permit valid for one trip pursuant to the bylaws of the law on fishing and fisheries development.

--No licenses or permits will be given foreign vessels of over 600 tons of net registered hold.

--Industrial fishing is banned for foreign vessels within a 60-nautical mile area starting from the base lines used to measure the width of the territorial sea for both the mainland and the islands.

Foreign vessels operating through rental contracts and/or in association with fishing firms established in the country through authorizations granted pursuant to the law on fishing and fisheries development shall be exempt from these regulations.

CSO: 3200

MEXICO

BRIEFS

POLICY ON 200-MILE ZONE--The Mexican Fisheries Department has announced that Mexico will uphold its policy of absolute sovereignty over the rights that it has in its 200-mile exclusive economic zone for the exploration, exploitation and conservation of its natural marine resources. It also announced that once foreign ships have accepted these regulations, the government will continue to collect fees and (a percentage) of the catch for fishing permits to commercially exploit certain species of (?marine life) in our territorial waters. The fishing department stated that once these ships comply with the requirements established by presidential decree, the causes of the so-called tuna war between Mexico and the United States--as recently described by certain international news agencies--will disappear. [Text] [PA191455 Mexico City International Service in Spanish 0300 GMT 19 Aug 80]

CSO: 3200

COLUMNIST STRESSES NEED TO PROTECT SEA INTERESTS

PA300407 Panama City MATUTINO in Spanish 27 Aug 80 p 4A

[Article by Harmodio Icaza: "Panama Faces the Sea"]

[Text] In December 1979, Rolando Anguizola published a study which indicated that Panama needed to define the principles of its maritime, port and fishing policies. On instructions of President Aristides Roys, Anguizola organized a national conference to analyze the problem and issue recommendations to establish those policies.

The event was held in May with the participation of officials, businessmen and workers. Experts in this field view the practical results of the conference, which have been published in a pamphlet that includes all the relevant documents, as the first scientific effort to discover the causes of our maritime, port and fishing problems. The conference issued realistic and accurate recommendations that can give Panama clear ideas on policies to protect and develop its maritime interests.

The conference's document also includes warnings on important matters related with the protection of the environment. We are stressing this today because we have already seen the urgent need to follow the recommendations of immediately establishing "...with the participation of all sectors directly involved, the plan to prevent damages to the aquatic ecosystem with specific contingency programs in cases of serious pollution caused by the spill of petroleum, chemical substances, radioactive elements and so forth." (Conference, recommendation 5).

It is evident that the conference produced material on existing problems as well as issued solutions, which, in many cases, only require that a higher authority issue orders and demand that they be implemented. The conference's documents include recommendations for well-grounded and realistic general policies.

That is why I believe the executive branch should immediately order the chiefs of the public institutions directly involved in this field to

promote the implementation of the recommendations on specific subjects and those which in the medium and long term will enable the Panamanian people to obtain the maximum benefit from their seas, ports and fishing.

Someone should also take responsibility for the future of the Marine Academy which regardless of all difficulties, without an operations budget and without any other help but the charity of friends, continues to graduate naval officers with great academic training. That institution deserves a better fate.

CSO: 5200

BRIEFS

CORRECTION IN SEA LAW--President Dr Aristides Royo informed the nation a few weeks ago that his administration would strongly protest to the U.S. Government for including the former Panama Canal zone in a law recently approved by President Carter as being within U.S. territorial waters. Panama's protest was not long in coming. As is public knowledge it was both clear and severe and it pointed out the need to urgently correct that situation because Panama felt that its sovereignty and the letter of the Torrijos-Carter treaty had been violated. Meanwhile public opinion groups took action, particularly in the papers, to voice support for the Panamanian Government's attitude in demanding a correction. An official reply has now been received from Washington. Both the White House and the State Department have accepted the Panamanian proposals as appropriate, announcing that what in Washington has been called "an unintentional error" will soon be corrected. [Editorial: "Timely Correction"] [Excerpt] [PA012156 Panama City LA REPUBLICA in Spanish 28 Aug 80 p 4A]

CSO: 5200

RECOGNITION OF 350-MILE CONTINENTAL SHELF SOUGHT

PY141999 Montevideo Radio El Espectador Network in Spanish 1600 GMT 14 Aug 80

[Text] Uruguay is trying to obtain recognition for its sovereignty over 350 miles of continental shelf. This statement had been made to this radio station by the under secretary for foreign relations who will travel to Geneva today.

In Geneva he will head the Uruguayan delegation to the Law of the Sea Conference. Uruguay, which like other countries has sovereignty over 200 miles of sea, will now seek recognition for its sovereignty over 350 miles of continental shelf.

Under Secretary Julio Cesar Lupinacci indicated that this is going to be one of the main issues at the Geneva meeting.

[Begin Lupinacci recording] It has been said, and it is correct, that as long as the continental shelf maintains its geological continuity beyond the 200 miles off the coast and up to the maximum of 350 miles, the states should be able to have sovereign access to its resources.

Uruguay is one of the marginal [marginalista] states, that is to say that it has a broad continental shelf which goes beyond 200 miles. This means that the jurisdictional waters extend to 200 miles from shore, but underneath, the seabed and subsoil geologically continue for approximately 600 miles. This can be scientifically established if necessary, and what Uruguay is negotiating for is sovereign rights to explore and exploit the living and mineral resources of this area.

[Question] Uruguay wants rights over the subsoil?

[Answer] Of course; why not? Uruguay is one of the so-called marginal countries and has been negotiating together with Argentina, Australia, New Zealand, Canada, the UK, Norway, Ireland and the United States, with whom we have coordinated joint positions aimed at seeking recognition of the sovereign rights which the coastal states have over the natural extension of their territory under the sea. The sea floor and its subsoil are geological extensions of the continent; it belongs to our country and we will exercise our sovereign right to exploit its resources. [end recording]

CS0: 5200

MAURITANIA

FRENCH, SPANISH, KOREAN VESSELS SEIZED

London WEST AFRICA in English 8 Sep 80 p 1730

[Text] Nine foreign vessels have been seized by the Mauritanian authorities. Six are French, two Spanish and one is Korean. They are accused of fishing illegally in Mauritanian territorial waters. These consist of a 70-mile official territorial waters and 130 miles which form the Exclusive Economic Zone.

The six French boats are based in Dakar. The majority of the 95 crew members are Senegalese and are still in Nouadhibou where the boats are being kept. The six owners of the boats are under house arrest in Nouakchott where legal proceedings are currently underway. The crew members have remained aboard their boats awaiting repatriation.

It is suggested that the nine boats are not affected by the most recent measures announced by the Mauritanian Government which permits the administration to confiscate any vessel found fishing illegally in Mauritanian territorial waters. Previously the law required that any confiscation would have to follow a court order. This is now no longer necessary.

The new legislation has no retractive power and the nine vessels were seized before the publication of the law.

At present no vessel is authorised to fish in Mauritanian territorial waters unless it is based in Mauritania. Fishing licenses have not been issued for two years because the government took exception to the excessive exploitation of its waters by foreign companies which never landed or reported their catch to the local authorities.

The new laws are very much in keeping with the FAO policy of helping in the installation of joint venture companies which will bring together the fishing processing sectors of the industry.

After iron, fishing is considered Mauritania's next major revenue earner.

CSO: 5200

GUINEA-GUINEA-BISSAU TERRITORIAL WATER DISPUTE DISCUSSED

London WEST AFRICA in English 8 Sep 80 p 1688

[Text]

IN 1964 Guinea annexed a piece of territory that belonged to Portuguese Guinea, now Guinea-Bissau. It is the territorial water off this piece of land that is now the cause of the courting of relations between the two countries. Conakry maintains that in any event "the borders agreed upon by France and Portugal in 1886 constitute the official borders between the former Portuguese Guinea and the former French Guinea". President Sekou Touré has added "Even if we took a bit of territory from Portugal in conformity with our law of 1964, has Guinea-Bissau any right to challenge our law 16 years later, considering that Portugal neither promoted nor challenged us? Guinea-Bissau cannot legally do this because it has inherited an established reality."

His case is a modified one and it raises some important and topical questions. Firstly can an independent African state come to a binding agreement over boundaries with a colonial power? There are two wars being fought in Africa over this very issue. In Western Sahara the Spanish ceded their colony to the joint control of Morocco and Mauritania, and in the Horn of Africa, after the Second World War, Britain ceded part of British Somaliland to Ethiopia.

Maritime boundaries, secondly, were never really considered in the past. The French and the Portuguese did not demarcate their territorial waters because they were never at issue. The OAU has never taken a clear stand on territorial waters, even though it sanctifies boundaries inherited from the colonial era.

Conakry now claims that it gave back some of the disputed zone. Evidently Bissau is not pleased with the crumbs. The reason is clear and it may well plague relations between other coastal states in Africa: oil

has been discovered in the zone, and Conakry's prospecting has led Bissau to appreciate the need to be absolutely clear as to where exactly its maritime frontiers lie.

Along with the renewed interest that is being shown in the fishing potential off the Western African coast, the hopes that are placed in oil discoveries place the whole debate on the law of the sea at the heart of the concerns of African governments. There are offshore oilfields all along the West African coastline which cross the apparent borders — those between Ghana and Ivory Coast are examples. What if oil is discovered off countries as narrow as Togo or Benin?

There are two issues which are of immediate interest to African countries. The first concerns the demarcation of the exact line between maritime boundaries that overlap. Those who propose a line stretching out to sea that continues to be strictly equidistant from each point on the shoreline are opposed by others who prefer a much more flexible approach concentrating on the angle of such a line.

The second issue centres on the distance to which a country's territorial waters extend. While this problem does not affect the Bissau-Conakry imbroglio, it is certainly reflected in the policies of other countries. Mauritania has seized nine ships which have been fishing in its territorial waters which, once one includes the official waters and the Exclusive Economic Zone, extends 200 miles out to sea. Africa is fortunate that it has very few islands close to its shores. Biogo, formerly Fernando Po, is an exception and it has caused problems in the past.

In either case, wealth which could mean the reversal of economic misfortune for a country like Mauritania is at stake.

IVORY COAST

FUTURE OF FISHING INDUSTRY STUDIED

Abidjan FRATERNITE-MATIN in French 28, 29, 30, 31 Jul, 1 Aug 80

[Five-part series by Sophie Chegaray: "What Is the Future of the Ivorian Fishing Industry?"]

[28 Jul 80, pp 19-20]

[Text] With its 500 kilometers of coastline, Ivory Coast would appear to be a privileged country from a marine resources viewpoint. From the standpoint of the most elementary of all marine exploitations, however, things are going badly: The country's leading trawling vessel operator, ~~Armement Ivoire~~ [Ivois Shipowners], has recently filed a statement of bankruptcy, and the other operators are pessimistic about their futures.

On the other hand, fish is the leading source of animal protein in the Ivorian population's diet. Fishing, moreover, provides employment directly or indirectly to 60,000 workers.

A maritime country the Ivory Coast certainly is, with its wide sea frontier extending over a distance of 500 kilometers and representing one-fourth of its total boundaries.

Since the 16th and 17th centuries, the accounts of the great navigators have evoked ~~scenes~~ of strapping young men, inhabitants of the coast, for whom the ocean and its violent surf presented no obstacle whatever to fishing. But for excellent food-fishing in Ivory Coast, it was less than necessary to make the difficult crossing of the sand bar, because the lagoon was there, offering its vast expanse of calm water abounding in fish. For the inhabitants of its lower coastal region, fish has always represented one of their main staples.

And as trade and communications developed, the taste for this nutritious food spread throughout the country.

Per Capita Consumption: 24 Kilos

The Ivorian has now become a great consumer of fish: In 1979, national consumption totaled 185,000 tons, or 24 kilos per person per year. By comparison, in France, a country with a high rate of fish consumption, the annual per capita rate is 17 kilos per inhabitant.

Why the Ivorians' taste for fish? Simply the fact that Ivory Coast has only very recently begun to take an interest in developing a livestock industry. Its meat, until just a few years ago, came mainly from the Sahel, so that the country found itself directly affected by Sahelian droughts. The result was that the consumption of fish increased considerably, actually to the point of replacing meat from the Sahel.

Over the past 3 or 4 years a major effort in aid has been provided to develop its livestock industry, especially poultry. But chicken in the average household food basket represents a luxury as compared with fish (1,200 francs per kilo against 300 francs for fish). Thus, annual meat consumption remains only half as much as fish consumption, even though it is increasing from year to year (fish consumption, which was 20 kilos in 1976, is now 24 kilos).

Fish thus continues to be part of the basic nutrition of the Ivorian. Its function is indispensable at the more disadvantaged levels of the population.

While it may seem contradictory in view of Ivory Coast's long marine coastline, it remains a disadvantaged country from the standpoint of fishing. The fact is that its continental shelf, that is, the natural extension of the continent into the ocean, and its privileged fishing ground, is extremely slender, varying in width from 11 to 20 nautical miles out from the shore, whereas Senegal's continental shelf extends out 50 miles, Mauritania's 79 miles, Republic of Guinea's 110 miles, and South Africa's 150 miles.

But even worse is the fact that the waters in this region are naturally poor. This is owing to the weak upwellings, those upward flows of cold water that bring up matter rich in nitrites, nitrates, phosphates and other sources of productivity.

For, these mineral salts nourish the plankton which in turn nourishes the fish, this being the cycle of marine life. Now then, in countries like Mauritania and South Africa, upwellings continue throughout the 12 months of the year; in Senegal they last throughout at least 10 months. Unfortunately for Ivory Coast, however, they occur only during 4 of the 12

months (July, August, October, November), so that the sea there is, generally speaking, poor in animal and vegetable plankton and, as a consequence, poor in fish.

Added to this are ecological phenomena with which man is totally unable to cope. For example, since 1972, the round sardine (*sardinella aurita*) has almost entirely disappeared from Ivorian-Ghanaian waters: compared with catches totaling 30,000 tons annually before 1972, the sardine fishermen now rarely attain more than a total of 1,000-2,000 tons a year. Is this phenomenon owing to overexploitation of these waters? It is a plausible hypothesis which it has not yet been possible, however, to demonstrate.

Poor Fishing waters

The herring (*sardinella eba*) has survived and constitutes today the essential catch of the sardine fishermen.

While the round sardine was disappearing, another animal species began to proliferate: the balistidae, better known as "leather fish," which the fishermen reject at sea for reasons that are clearly expressed by their pseudonym.

We note, however, that the Ghanaians, stronger-jawed no doubt, consume the balistidae all the same.

In any case, the phenomenon shows how fragile and capricious nature can be: the aquatic ecosystem proceeds from an admirable balance between the fauna and the flora, in which each species survives and reproduces despite the aggressions of the other species. But this balance can be totally upset by the hand of man: As long as fishing remains an art, it effects no real modifications on the ecosystem; but as soon as the operation becomes industrialized and systematized it can cause absolute upsets and lead to the depopulation, perhaps irreversible, of ocean waters.

A Fragile Balance

The fishing effort that a continental shelf can support is a calculation that can and must be precisely arrived at. According to the CRO [Oceanographic Research Center], this effort for Ivorian waters comes to 10,000 or 15,000 tons of sardines and 5,000 tons of trawlable fish per year. It is evident, therefore, that the Ivorian waters have been (at least in the past) overexploited and that their current poverty is the direct consequence of this.

On the other hand, they are no longer being overexploited today, in that the large fishing vessels are going out to more distant waters to fish. Worked only by small boats, the Ivorian continental shelf fishing effort today does not exceed 5,000 tons of trawlable fish and 10,000 tons of sardines.

Particularly devastating is ocean-bottom trawling, consisting of a systematic scraping of the bottom of the continental shelf with the trawlnet, thus actually destroying the aquatic environment and hence the reproductive process. This technique, long used by the local shipowners, is fortunately tending to be abandoned in favor of deep trawling (in which the trawlnet merely skims the bottom) and midwater trawling (at depths substantially below the surface but substantially above the bottom).

The Directorate of Marine and Lagoon Fishing is tending strongly to favor the latter two techniques. The change is being brought about easily, since ocean-bottom trawling has become rather unprofitable.

The Fishing Port: Improvement and Expansion Plans

The creation of the fishing port is relatively recent in that it dates back only to 1961.

The fact is that when the port of Abidjan was opened in 1950, fishing in Ivory Coast was still being done on a mere artisanal scale. Carried on by fishermen in pirogues along the coast or in the lagoon, it did not justify special installations or equipment.

The first fishing port was placed in service in 1955 with a dock 150 meters long and an auction shed.

Work on the present fishing port started in 1961 and was completed in 1963. It was only from then on that industrial fishing was able to get under way.

Today, the fishing port consists of 1,050 meters of docks equipped with water, electricity and a gasoil fueling station. It includes 6,400 square meters of space for sorting and grading and actioning of catch, as well as 45,000 square meters of operations buildings equipped with telephone and telex services.

Had a number of fishing fleet operators not discontinued their activities, the fishing port would now be too small. But the situation is such that for the moment it suffices.

Its installations and equipment, however, are rather timeworn. This is why the Port Authority has decided to renovate the lighting and electric power installations of the docks. The auction room will also be rehabilitated. These projects are in progress. In any event, in case of recovery of the fishing industry, the present installations could be enlarged thanks to a glassed-in landing stage and refueling station built on as an extension of the tuna dock.

Lastly, a second fishing port is being planned as part of the Locodjro port expansion project.

Fishing Rights Agreements: With Whom?

In view of the insufficiency of its own continental shelf, what can Ivory Coast do to meet its needs in fresh fish?

Its only possibility is to seek the fish it needs in foreign waters by way of negotiated fishing rights. But this requires that its "brother countries" agree to the sharing involved.

Deep sea fish exist in abundance, for the reasons cited above, in the southern intertropical zone at the level of the Congo, Angola and Namibia, as well as above the 10th parallel north, that is, off of Sierra Leone, the two Guineas, Senegal, Mauritania and the former Spanish Sahara; the Gulf of Guinea is on the whole very poor.

Until now, the only real agreement the government has been able to negotiate has been with Senegal: "Senegal is 1,100 nautical miles away," Mr Roger, a shipowner, explains. "1,100 nautical miles is for the big vessels; the fuel cost is too high for the little ones."

Guinea-Conakry has also issued a few fishing licenses recently to Ivorian operators. But Guinea, like Senegal, is also too far away for the smaller vessels, the more so since these fishing licenses represent a heavy expense to the operators.

"We continue talking of agreements with Guinea as the magic answer," Mr Roger says further. "True, 20 years ago, off the coast of Guinea, we used to get wonderful catches. But are fish still plentiful in those waters? Very recently, we obtained fishing permits from Conakry, but our catches there have been very disappointing."

Guinea, like Angola, has granted a fishing monopoly in its waters to the Russian, Cuban, Bulgarian, Romanian, Polish and other vessels. Equipped with enormous factory ships, the Russians, not to mention the others, are carrying on intensive fishing operations there, providing another example of overexploitation leading to the impoverishment of fishing resources.

Meanwhile, the Ivory Coast's trawler and sardine fishing industry is dying. The scarcity of fish is one reason. But other economic phenomena are combining with these ecological problems to render the situation highly precarious.

[29 Jul 80, p 16]

[Text] Trawler and sardine fishing is in trouble. The leading local shipowner, Lucas, after having operated for 25 years in Ivory Coast, filed a bankruptcy statement in

March, and the Fishing Vessel Shipowners Association states that 50 percent of its members are in a very difficult situation: further decommissionings are moreover continuing.

The scarcity of fishing resources in Ivorian waters and the difficulties being experienced by Ivorian shipowners in obtaining fishing licenses in nearby waters are contributing to the situation. But these are not new factors. What has been as sudden, however, as it is crushing, is the diesel oil price increase...

Diesel oil represents a very significant portion -- around 30 percent -- of the industrial fishing activities budget. For Ivorian operators, no economies are possible in this respect, since the fish must be gone after wherever it can be found.

The price of diesel oil has risen steeply within a period of 1 year: from 30.50 francs per liter in January 1979 to 40.85 francs in April, to 64 francs in October, to 72.25 francs in January 1980: 4 successive increases totaling 110 percent in 1 year. For the industrial fishing sector, this cost jump had the formidable effect of a sledge hammer blow.

No More Subsidy

What is more, it was during this price upswEEP that the government decided to discontinue the fuel subsidy it had been granting to the various productive sectors. Started in 1974, this fuel subsidy of 8.15 francs per liter was very appreciable, in that until February 1979 it had represented a 30 percent reduction in the cost of fuel for fishing vessel operations. Thus when this subsidy was discontinued, the fishing fleet owners and operators were subjected to a fuel cost increase not of 110 percent but of 137 percent in the space of 1 year.

Why did the government decide to halt this subsidization? Because in the government's view, it was merely a subterfuge that camouflaged actual prices. Productive enterprises must price realistically.

It will be recalled that in October 1979 the EECI [Ivory Coast Electric Power Company] subjected its customers to a rate increase of 20 percent on the electricity they consumed: the fuel price increase was thus passed on to the consumers.

Collapsing Prices

At that point, the price of fish should have gone up by an amount proportional to the cost increases being borne by the fishing fleet operators. Instead, fish prices remained virtually stationary (they increased only 10

percent)--not because the producers wanted it so, but simply because, for some time now, they have found themselves competing desperately against imported fish.

Fished by the big Russian, Bulgarian or Polish factory ships off the African coasts, frozen fish have invaded the Ivorian market at prices defying all competition. For, these national fleets from the East do not operate according to the same profit and loss criteria as private fleets: For them, the acquisition of foreign currency is the paramount reason for the sale of the fish; the fact is that they always demand payment in dollars.

But is the acquisition of hard currency the sole objective being pursued by those fleets? At 50 or 60 francs per kilo, the price of this imported fish is a "dumping" price; in other words, a price capable of collapsing the market.

Faced by the enormous rise in fuel cost, the Ivorian operators, with a base price of 100 francs per kilo, cannot compete unless their catches are big. How then are they to cope with this frozen fish competition?

We should point out that Ivory Coast also buys large quantities of frozen fish from Senegal. But this fish, even though it is considerably cheaper than fresh fish, is far from reaching the dumping prices of fish "from the East." It is virtually considered local fish, since it pays no customs import duties.

A Social Problem

What is likely to be the outcome of this foreign competition? By destroying prices, the massive injection of imported fish is endangering the local fishing industry. The question is: Once having driven the latter into bankruptcy and remained master of the market, will imported fish remain at such a low price? It is unlikely: The East is as thoroughly familiar as the West with the law of supply and demand!

But there is a still more serious danger: Suppose Ivory Coast were to find itself being supplied with fish exclusively by the Soviet bloc, and that all of a sudden the latter decided to abandon the Ivorian market. What then? The population would find itself suddenly deprived of animal proteins at affordable prices: The disadvantaged social strata would be the first to suffer from it.

While it may seem a bit exaggerated to speak of a destabilizing threat at this point, there is in any case the risk of becoming dependent on foreign sources for food--a risk that the country cannot permit itself to incur.

Be that as it may, Ivory Coast is paying a high price for its imported fish in the outpour of hard currency involved. In 1979, these imports totaled 9 billion CFA francs--a sum that was fortunately attenuated to some extent by exports of canned tuna (6 billion CFA francs in 1979).

The problem is serious, for the fact is that the collapse of the market is already in progress: The cold storage warehouses are filled to the point of bursting with frozen fish and the foreign factory ships are compelled to wait up to 10 days at times at the dock to unload as soon as space becomes available in the warehouses to be filled up again.

And when the Ivorian trawlers and sardine boats return to port they find it hard to sell their catch: Fresh fish, at four times the price of frozen fish, has to be highly prized indeed to sell! For the middlemen, the difference is quite substantial, and they prefer to deal in frozen fish, which brings them greater profits.

Moreover, fresh fish cannot stand to wait in this climate: If not sold as soon as unloaded, it begins to go stale. The operators are then compelled to dispose of it at ridiculous prices to the REAL Company, which converts it to fish meal.

Fresh Fish: How Fresh?

What indeed is the quality of the fish brought in by the trawlers after 18 or 20 days at sea?

It appears that this fish, despite the fact that it has not even been cleaned, nevertheless preserves an acceptable market quality. "This is owing to the fact that the biological process of fish are adapted to the temperatures of the environment in which they live. Those of the cold sea species are adapted to temperatures between $+2^{\circ}\text{C}$ and $+6^{\circ}\text{C}$. The physiologies of the warm sea species are adapted to temperatures between $+25^{\circ}\text{C}$ and 28°C .

"Freezing or refrigeration of the trawler holds keeps their ambient temperature at between 0°C and $+2^{\circ}\text{C}$. The difference is very slight for cold water fish but very substantial for tropical species (23° - 25° at least). The bacterial flora, the enzymes and the chemical processes of deterioration are thus hindered and the start of their action considerably slowed down.

"But what is certain is that the lack of cleanliness of the wooden auction crates, which are never disinfected, and the excessive time the fish stays on the auction floor (from 1800 to 0700 hours the next morning) at a temperature of 40°C , are harmful to its quality of freshness." The foregoing is quoted from a study carried out in 1979 by the Technical Consultations Office of the SCET [Central Company for Territorial Equipment] International on the auction operation of the Abidjan fishing port.

In France, public health rules and regulations stipulate that fish may not remain in a refrigerated hold more than 10 days to preserve its marketable degree of freshness.

The only way to avoid rewarming the fish, the study points out, would be to "transfer it immediately upon unloading it into an air conditioned building kept at +10° C, where all sorting and auctioning operations would be carried out."

Currently, sanitary control of fish after it is unloaded is exercised by the Directorate of Marine and Lagoon Fishing. When fish is "doubtful" it is dipped in methylene blue and in this way marked as being unfit for human consumption.

This, however, does not prevent the frequent appearance of "blue" fish in the marketplaces...

Frozen Fish As a Backup

To rescue the local fishing industry means taking steps in regard to imported fish: This, after all, is the principle of protectionism that Ivory Coast currently applies in many other sectors.

It is of course out of the question to stop all imports, since domestic production cannot satisfy the national demand. But imported fish must be considered a backup, and as such severely conditioned: This will require close coordination between the Ministry of Animal Production and the Ministry of Commerce. The Directorate of Marine and Lagoon Fishing is there to provide the needed fishing statistics: It is based specifically on these statistics that the needed imports could be quantified. Supply and demand would thus be brought into balance, and prices, as a result, stabilized.

Halt the Sinking

In 1978, there were 25 trawlers; today, there are no more than 17 in operation and the shipowners do not hide the fact of their uneasiness: "If our creditors were to become demanding," they say, "half of us would be forced to discontinue operations." The most recent reports indicate that nine more vessels have been decommissioned.

In supplying 40,000 tons of fish a year (19,152 tons of sardines and 10,856 tons of trawlable fish in 1979), the trawler and sardine fishing industry fulfills an economic role that cannot be neglected: In fact, it covers one-third of our national needs of this food staple, provides a livelihood to 2,000 seamen, and directly or indirectly generates more than 60,000 jobs.

Ivory Coast is not the only country to be experiencing hard times in this sector of production. Most of the European countries characterized by a fishing tradition are being compelled to aid their shipowners: In France, in Great Britain, in Spain, public subsidies (fuel allowances, investment assistance, etc...) are being granted to the fishing industry to keep them in operation.

It is a matter of a political choice.

[30 Jul 80, p 10]

[Text] The fishing industry is having a difficult time of it. The leading local shipowners, the Lucas Company files bankruptcy proceedings last month, and the Fishing Shipowners Association states that 50 percent of its member owners and operators are in financial trouble. The paucity of fish in Ivorian waters and the problems the shipowners and operators are having in getting fishing licenses in waters close enough to Ivory Coast are at the base of their difficulties. But other factors have exacerbated the situation: the upward zoom of diesel oil prices--137 percent in 1 year--and the competition from frozen fish imports from the Eastern European countries, which are seriously endangering the Ivorian trawler and sardine fishing industry.

Although Ivory Coast is a disadvantaged country as regards its continental shelf fishing resources, it enjoys on the other hand a privileged position in regard to deep-sea fishing. This is again the result of ecological phenomena: Tuna is in fact a migratory fish that lives in the high seas and migrates seasonally within a zone extending from Senegal (the region of Principe Island, Annobon, etc...) to the Guinea Dome (out from Conakry).

Ivory Coast therefore finds itself in a rather central position with respect to this zone of action.

This favorable position is reflected especially in the Abidjan port's traffic: "Besides the Ivorian tuna fleet," explains Dr Luc Koffi, head of the Directorate of Ocean and Lagoon Fishing, "the port of Abidjan harbors the French tuna fleet during most of the year. Since 1974, Abidjan has tended to supplant Dakar in this respect: In 1978, the Franco-Ivorian fleet unloaded 81 percent of their catches at Abidjan versus 16 percent at Dakar."

Africa's Leading Tuna Port

Almost 500 tuna ships a year of all registries--Chinese, American, Panamanian, Senegalese, but mostly Moroccan and Spanish--transit the Ivory Coast, making of Abidjan Africa's leading tuna traffic port. Added to these tuna fishing vessels are the refrigerator ships that come to load frozen tuna that has been warehoused by SOGIP [expansion unknown] (storage capacity at -20°C is 12,000 tons) and by SOGEF [expansion unknown], a smaller company (1,500 tons at -20°C).

A rather recent Ivory Coast activity, tuna fishing has grown in just a few years: In 1976, the local fleet consisted of 5 ships; today it totals 8, and within 2 months it will total 10 ships.

Just three shipowner enterprises share this sector of activity:

--SIPAR [expansion unknown], in which the state is the majority shareholder, owns five modern tuna fishing vessels, of which the two smallest are currently up for sale, and has ordered a tuna supership, 70 meters long and equipped with a heliport, which is scheduled for delivery within 1 or 2 months.

--SMLC [expansion unknown] owns two tuna ships and is momentarily awaiting delivery of a third one, 70 meters long.

--Oceanic Armement owns only one ship, but a large one (72 meters long), which seems to be the most viable answer since the larger catches it accommodates help to offset the higher fuel costs, fuel comprising nearly 30 percent of the shipowner's costs.

With modern fleets and a rather substantial investment plan (a 70-meter tuna ship costs between 1.5 and 2 billion CFA francs), the tuna fishing industry seems to be reasonably prospering.

"Nevertheless," says Dr Luc Koffi, "it too is experiencing difficulties owing to the fuel cost increase. Confronted by French and Spanish shipowners that are subsidized by their respective governments, the Ivorian shipowners find it hard to compete.

"This is why we are currently studying ways and means of helping our shipowners to hold their own."

By agreement, the price of tuna is reviewed twice a year and account taken of the cost increases borne by the shipowners. Their total production is bought by SOVETCO [expansion unknown], a French cooperative, of which the Ivorian tuna shipowners and operators are members.

A World of Secrets

Tuna fishing is by no means artisanal. It is carried on today by quite sophisticated fishing methods: Banks (let us not forget that tuna is a migratory fish) are detected by radar and fishing is done with seining ships 30 to 70 meters long and equipped with encircling seine nets often 2 kilometers long and several hundred meters high.

Through the use of such equipment, catches can be as high as 500 tons of fish in a single casting of line--sometimes as much as 500 tons of fish in a single casting of line. However, 10 to 15 tons per casting is more usual.

Tuna fishing is a world of silence...among the men: Each shipowner has his favorite fishing spots and his own charts of the ocean bottom, which he keeps secret to himself. Thanks to the improved navigational equipment with which modern tuna fishing vessels are provided, fertile sites can be accurately pinpointed and returned to each year at the proper time.

A Substantial Contribution

The unloadings and transshipments effected by the international tuna fleet play an important part in the activity of the port of Abidjan. These tuna ships use the port's refrigeration facilities, take on supplies of food and diesel fuel, have repairs made in the docks and local naval shops, besides paying harbor, merchandise and other taxes.

According to Dr Luc Koffi, these expenditures come to at least 3 million francs CFA per ship per call. At the rate of 10 port calls per ship, the number of ships regularly using the port of Abidjan being some 400, some 12 billion francs CFA are brought into the Ivorian public coffers annually by the Abidjan tuna port.

Aside from this contribution of exchange, the presence of these tuna ships provides direct employment for over 300 dockers who are assigned full time to servicing the tuna. Local industries linked to the tuna fishing activity employ around 2,000 additional persons.

Contribution in Hard Currency

SOVETCO markets frozen tuna internationally and supplies the two local tinning plants.

Of the 80,000 tons of tuna that transit Ivory Coast, around 30,000 tons are processed on the spot and exported. Canned tuna provides the country with an appreciable amount of hard currencies (8 billion in 1979), offsetting most of its frozen fish imports:

--Installed and operating since 1962, SCODI [expansion unknown], formed by the French group Saupiquet et Graciet, has a capacity of 150 tons a day, enabling it to process 22,000 tons of fish a year. A major investment effort undertaken during 1978 and 1979 resulted in a 50 percent increase of its capacity.

--Pêche et Froid de Côte d'Ivoire, a subsidiary of the company of the same name installed at Boulogne-sur-mer (France), is of very recent origin, having been inaugurated in 1978. With a capacity of 75 tons a day, it can process 8,000 tons of fish a year.

Thus, with a total capacity of 30,000 tons a year, Ivory Coast occupies the world's second place, after Japan, as an exporter of canned tuna. We must point out that additional canning plants are in the planning stage, attesting the good health of this industrial sector.

Basic Food Problem Remains

The tuna fishing industry is thus a rather prosperous sector within a fishing industry environment that is in trouble on the whole and that Ivory Coast has every interest in protecting, indeed developing, through incisive measures.

Nevertheless, the tuna fishing industry is situated on the margin of the general Ivorian fishing industry problem, in that it is oriented toward the export market. It cannot therefore resolve the problems of self-sufficiency in food that would be posed our trawling and sardine fishing industries disappear.

The two sectors (tuna fishing and trawlable fishing) put on the same footing, and under no conditions can the tuna industry ever be considered a possible substitute for the fresh fish industry that must supply our national food needs.

[31 Jul 80, pp 10-11]

[Text] Opposite the natural poverty of the Ivorian continental shelf in fishing resources, opposite the difficulties being encountered by its fishing industry by way of rising fuel prices, Ivory Coast must devote itself to finding new solutions to its fish supply problem.

The country is endowed with an exceptional potentiality consisting of its vast bodies of lagoonal waters, covering some 150,000 hectares on the whole, in which aquicultural methods have been tested and which are capable of being put into production.

Fishing in inland waters is an activity as old as the Ivorian soil itself. The Ebrie, Aby, Tagba, Aghien and other lagoons are bodies of calm waters abounding in fish, which the lagoonal populations have always exploited, at least by means of very rudimentary methods. Certain of these lagoons, however, are now showing signs of overexploitation leading to an impoverishment in terms of their fish and crustacean resources.

Despite the current diminution of their stocks, these bodies of lagoonal waters can very easily be exploited in a rational manner through aquiculture.

Ivory Coast's 150,000 hectares of lagoons offer a number of natural characteristics that lend themselves perfectly to aquiculture: these expanses of water are actually very calm generally; the prevailing winds from

the southwest sector are barely able to raise a slight choppieness, the more so inasmuch as they are generally not very wide (except for the Aby lagoon, none of them exceeds 4 kilometers in width at any point). Their beds, consisting of sand and the remains of shells, are not very deep, making it quite easy to construct vast enclosures. And lastly, the hydrologic conditions of these lagoons are known and stable: Aside from the lagoons subject to inflows of fresh water (from rivers) or of sea water (like the Ebrie lagoon around Abidjan), the lagoonal waters show virtually no seasonal variations.

To raise fish by intensive aquicultural methods requires large quantities of nutritional resources, without which aquiculture would be prohibitive from the profitability standpoint.

It so happens that in Ivory Coast the residues of agroindustrial processes are poorly or not at all exploited: for instance, cottonseed cake, palm-nut cake, coconut cake, sugar cane molasses, banana sorting waste; more than 100,000 tons of feed could be recovered from these agroindustrial residues.

Around Abidjan, many factories have been set up in the past few years to produce animal feed: IVOGRAIN (SIPRA) in Yopougon, DOMAR in Abadjan Route, in Bey and in Abidjan-Route, are establishments capable of producing feeds of all kinds according to desired formulas.

Aquiculture fish can also be fed directly with these industrially made products, at least those fish having a high market value. Here we have an economic argument in favor of developing aquiculture in Ivory Coast.

"Minister's Fish" First

For years, the CRO [Oceanographic Research Center] has been working on the Biology of a highly prized fish that would lend itself to aquiculture as well, namely, the jawfish. The CRO's research efforts have been centered on its reproduction (induced laying of eggs, artificial reproduction), the determinant factor in this method of breeding.

At Grand-Lahou, a very reliable and profitable technique for fattening jawfish, on the other hand, has been developed by a private company. The jawfish, in this instance, are bought from the fishermen when they weigh around 80 grams each, placed in enclosures and fed a balanced and cheap formula. In 8 or 10 months, these fish weigh 500 grams each and are sold on the fish stands in markets (at 1,500 francs per kilo fresh, and 3,000 francs per kilo smoked). Let us not forget that jawfish is a highly prized dish that is always on the menu for any Ivorian feast; in fact, it is called the "minister's fish."

At Jacquville, with financing from the Ministry of Animal Production, a stocking station was built in 1978. Jawfish eggs collected from the lagoon are incubated at the station and the fry are fed until they reach a size at which they can be released into the enclosure.

Thus, the raising of jawfish shows signs of promising results, provided, of course, it becomes possible to exploit induced reproduction methods that have yet to be perfected, barely opening the doors to industrial aquiculture.

Tilapia Easily Raised

The lagoon carp (tilapia) is another fish on which Ivory Coast is placing great hopes as regards aquiculture. It is moreover a fish that is being easily raised in ponds throughout Africa, and whose feeding and reproduction are well known techniques.

It shows great tolerance to salinity, and a marketable sized fish can be obtained in 6 months of intensive raising.

Since 1976, tests have been conducted on raising of carp in floating cages. The first trials effected at Mopoyen (near Dabou), then at Bingerville, gave satisfactory results: Simple cages can be built at a cost of about 40,000-60,000 francs by inexperienced persons. The cost of proper feeding is also reasonable: to produce 1 kilo of carp requires 120 francs of feed.

Sold on the local market at 600 francs per kilo, lagoon carp appears to have a promising future.

First Stage: Artisanal Aquiculture

As a first step, the government would like to develop artisanal aquiculture among the lagoonal populations. This would actually be an incentive to village youths to stay in their own localities, by enabling them to earn appreciable incomes, at the same time that it restored to villages a self-sufficiency in food that had been compromised by impoverishment of the lagoon.

The governmental program, which would have been launched this year if budgetary restrictions had not intervened, will consist of training youths in artisanal aquiculture, helping them set up their own operation, and providing them with specialized technical help.

This popularization effort, which will be conducted by the Aquiculture Service of the Directorate of Marine and Lagoon Fishing, will center on the technique of floating cages and on tilapia, since the induced reproduction techniques have been perfected for this species; the aquiculturists will, of course, handle the fattening process, while the reproduction remains in the hands of specialized centers.

The raising of jawfish, which is more of a problem, will be only gradually extended to selected favorable sites.

The aquiculturists will in all cases be encouraged to form cooperatives to facilitate financing, operations, and the marketing of their products.

Industrial Farms for Higher Production Levels

The development of artisanal aquiculture will not impede the development of industrial aquicultural farms capable of supplying larger town and city markets.

The first such farm has already been built, in 1979, at Bapo (sub-prefecture of Jacqueville) by British Petroleum Farms on a purely private investment basis. Its objective is to produce, within 3 years from now, 500 tons a year of tilapia (lagoon carp) on a total investment of 200 million francs CFA. Its current production is 150 tons; this will be doubled next year.

Uncertainties Still Abound

It would be tempting to say: "Let us forge ahead with aquiculture, with an intensive development of this economic form of animal production."

But the fact is that this potential is still clouded by many uncertainties. It is at the stage of production of the fry that much has yet to be done in the way of research and development before large-scale aquiculture can be seriously considered. In this regard, it appears that the research effort is loosely dispersed, with the CMO, under the Ministry of Scientific Research, in one corner of the arena, and the Ministry of Animal Production creating its own research structures in another.

This is unfortunate. What is needed is an effectively coordinated effort, the more so since the research that has been done so far has failed in every way to attain any objective: for example, nothing is known yet of the pathology of the tilapia or of the jawfish, although it appears quite certain that an animal concentration inevitably involving mass phenomena will some day or other pose pathological problems.

There is also the problem of pollution which can cause enormous losses in aquiculture operations. This pollution could as easily come from Abidjan (urban pollution) as from farming activities (insecticides); it could even come from unlawful fishing methods (some fishermen catch fish by poisoning them!).

Before undertaking a large-scale aquicultural action, it appears necessary, therefore, that all up and down the line there be general coordination and that the natural environment be thoroughly mastered. The catastrophe that occurred last year in the Ebrie lagoon, inexplicably causing the death of a major portion of the fish populating that lagoon, is a pointed example of the fragility of the lagoonal ecosystem.

offering as it does undeniable and perhaps immense potentialities, aquaculture should thus be viewed, from the near-term standpoint, as a complement of marine fishing. As things now stand, however, it cannot at all be thought of as a substitute for the latter. It would therefore be folly to say: "Why save marine fishing when we have aquaculture?"

Diversification of resources is, as Ivory Coast knows, the best economic safeguard. Aquaculture as a complement of marine fishing, yes; as a substitute, no!

The Lagoons: A Highly Productive Environmental Resource That Must Be Preserved

Very little is known as yet about the lagoons, those unique and highly productive environments situated at the junctions between sea waters and fresh waters. As an example of their productivity, 10,000 tons of fish and crustaceans are taken each year from the Ebrie lagoon alone.

Owing to the intensification of fishing activity and, above all, to the use of modern equipment--more efficient and at times even murderous of the young--it became indispensable to consider a more rational exploitation of their stocks.

At the Ivorian government's request, a study of the Ebrie lagoon fisheries was therefore undertaken in 1974 and a data gathering network was put into operation to study the dynamic of the species being exploited.

Ivory Coast is especially well provided with lagoonal brackish environments, in that its lagoons extend for 300 kilometers along its coast and cover an area of the order of 1,200 square kilometers. They are environments characterized by complex ecosystems subject to the conjugate influences of inland and marine waters. They are in fact products at one and the same time of the coastal or Sudanese river systems and of the size and natural or artificial origins of the links between these systems and the oceanic environment.

These tropical brackish environments are extremely important to a number of human activities: communications, trade, fishing, tourism. Yet, they had never until recently been the object of systematic and extensive studies, even though it was these self-same activities that had brought about the concentrations of population along the coast, a gradual urbanization, and by way of consequence, various effects upon the environment. This evolution is especially characteristic of and strikingly clear in the case of the Ebrie lagoon, which was provided with an artificial outlet to the sea, the Vridi canal, and around which the Abidjan agglomeration developed rapidly. It therefore became necessary to bridge the knowledge gap, and this was the reason for instituting an Ebrie lagoon research program in 1973, which was intensified in succeeding years to the point where in 1979 it represented more than half the research activity of Abidjan's CRO.

The Threat of Pollution

The Ivory Coast's lagoonal environments, and especially that of the Ebrie lagoon, are the collecting places of pollutants from agricultural (fertilizers, insecticides), industrial and domestic sources, the magnitude of which is increasing from year to year at an alarming rate. The effect of these pollutants is clearly a threat to the ecological balance of the lagoons and to their productivity. It has therefore become a matter of urgency to study the effects of these pollutants and to institute remedies if necessary.

The CRO has thus been charged with carrying out basic research on lagoon ecology in all sectors, whether or not they are subject to pollution, with assessing the effects of any pollution on the various aspects of organic production, and with recommending the corrective steps to be taken. The research is being carried by a mixed team of oceanographers and hydrobiologists, with the collaboration of geologists and sociologists. For example, its socioeconomic aspect began with a monographic study of a village to identify the various social factors that enter into the fishing domain. It involved a comparison of fishing activities with agricultural activities in this respect, as well as an analysis of the use of modern devices as compared with traditional methods, and their respective consequences. Extended to several villages and representative settlements, this study was able to identify a certain antagonistic situation among artisanal, collective and individual fishing activities, and a competitive situation between farming and fishing activities. In sum, this study enabled a delineation of fishing zones, to the extent possible, as a function of the methods in use therein, and a clearer insight into the social role of fishing in village life.

[1 Aug 80, p 15]

[Text] Why oceanography? What are the reasons that impel humanity to know and understand the oceans? To these questions, an obvious answer: the oceans cover 71 percent of our planet and they constitute, by virtue of that simple fact, a colossal reservoir of resources of all kinds: food, minerals, energy. The oceans are moreover a necessary means of communication and their influence on climates is preponderant (a thermal reservoir).

A colossal reservoir, yes, but not an unlimited one. Consequently, it is important to know its stocks and the mechanisms that govern the creation of those stocks to be able to manage them rationally.

The rational development of fishing, a better knowledge of lagoons and ocean bottoms, prospection, research and development of aquatic substances of medicinal interest. Projects such as these, carried out by the ORSTOM [Overseas Scientific and Technical Research Office (France)] and its specialized division, the CRO [Oceanographic Research Center], are contributing to the economic development of developing nations, by providing them the knowledge they need for a rational exploitation of the vast resources concealed by the oceans, rivers and lagoons.

Ivory Coast is fortunate in having a CRO base of its own. With Senegal, it is one of the rare African countries to have its own oceanographic research facilities. The Abidjan CRO, with its 30 researchers, is one of the largest ORSTOM subsidiaries.

The tropical ocean is characterized by a permanent homogeneous, warm surface layer; this is our planet's heat reservoir, the regulator of our climates.

This layer is separated from the cold subjacent layer, which is rich in minerals that are indispensable to the process of photosynthesis, by the thermocline, which constitutes a substantial barrier against the passage of these minerals into the sunlit surface area and thus limits the production of living matter. The tropical ocean is generally poor.

Winds, the coastal structure, the rotation of the earth, can all perturb this stratification, destroy the thermocline and allow cold mineral-rich water to rise to the surface: These are "upwellings," which modify the thermal exchanges between ocean and atmosphere and increase considerably the production of living matter that is exploitable from a fishing standpoint.

Upwellings are the true pastures of the tropical ocean.

The well known coastal upwellings are traditional fishing grounds (Peru, Mauritania, etc...).

Equatorial upwellings are of special interest, in that, neither well known nor intensively exploited, they can furnish abundant resources for the future. They cover, in the three oceans, an enormous geographical area, almost always more than 200 miles from the shores, hence accessible to everyone.

The study of these upwellings is therefore extremely important for the fishing industry in Gulf of Guinea.

In 1978 and 1979, an important project named CIPSEA ["Circulation and Production at the Equator in the Atlantic"] was undertaken in this regard by the French scientific research establishment with 40 researchers from the ORSTOM, the Abidjan CRO, the CNRS [National Center for Scientific Research (France)], the CNEXO [National Center for Exploitation of the Oceans (France)], the French Museum of Natural History, and the University of West Brittany. Under this project of international interest, Abidjan served as the base for the four oceanographic ships and the researchers.

"One of the essential reasons for studying the ocean," explains Mr. Herbland, ORSTOM researcher, "is food. Every year, man takes from the oceans 60 to 70 million tons of food for his own consumption and that of his animals. This is an impressive figure, but its impressiveness shrinks when compared, for example, with the world production of rice (350 million tons in 1978) and of wheat (350 million tons), totaling 700 million tons between them, wherefore it becomes only one-tenth of the world's cereal production."

This figure has increased continually since the beginning of man's fishing activities, and since what we are dealing with is a harvesting situation, the exploitation of a renewable natural resource, we should manage it as wisely as possible, so as not to deplete the stock just when the demographic explosion is rendering fishing more and more necessary.

For this reason, it is necessary to know as exactly as possible the quantities of the different species being caught each year. But this information alone is not sufficient. It must also be known where and when they were caught. "Measurements taken on sufficiently representative, that is, sufficiently large, samplings, and dissections performed to determine, for example, the states of maturity of the ovaries, provide data for determining the periods of reproduction. Examination of the scales enables determination of the age of fish.

"Collection of the larvae provides information on laying sites.

"Measurement and interpretation of all these parameters, constituting the biology of fish, are necessary to understand the evolution of stocks in space and time. Based on these data, and knowing the fishing effort being deployed, in terms of number of vessels, of nets, and of the various types of fishing gear being used, planning models can be constructed and rules and regulations established to protect stocks as effectively as possible."

Abidjan At the Center of This Research

Such studies have been carried out at the CRO over the past 15 years or so on all the species being fished here. They have been especially intensive on tuna, which represents a significant sector, in terms of tonnage and value, of the fish being unloaded in the port of Abidjan. An international

commission with headquarters in Madrid centralizes all the results for the tropical Atlantic and recommends the guidelines for the drawing up of a set of regulations; for example, it is illegal to take tuna of less than 2 years of age, meaning those that have not yet reproduced. Unfortunately, the regulations are rarely respected, particularly where the fishing is done in international waters belonging to everyone.

Food Chain

"Although the biology of fish is essential to good management of stocks, it alone is not sufficient. Fish are at the end of a complex food chain. Knowledge of oceanic food chains is one of the major biological oceanographic problems."

On land, man consumes animals that are for the most part herbivores. Man is therefore a first-order carnivore. In the ocean, plants are nonexistent; those which could be equivalent to plants, the algae of different colors that grow on rocky coasts, represent an infinitesimal production, and they are not (or not very much) consumed.

"All vegetal production is in the form of billions of tiny cells that float freely in the water and are called phytoplanktons (phyto = plant, plankton = floating). The phytoplanktons are consumed by herbivores, which are most generally tiny organisms less than a few millimeters long, called zooplanktons (zoo = animal). These herbivores are in turn consumed by the first-order carnivores, which may be fish or other zooplanktons. The latter zooplanktons are consumed by second-order carnivorous fish.

Thus, man is most often a second- or third-order carnivore. The most important fact of these food chains is the low yield obtained when going from one echelon to another. It is of the order of 10 percent. For example, 1 kilo of tuna, a second-order carnivore, will have consumed 10 kilos of first-order carnivorous fish, which will in turn have consumed 100 kilos of herbivorous zooplanktons, which will have grazed 1,000 kilos of phytoplanktons. Consequently, 1 kilo of tuna costs the ocean 1 ton of phytoplanktons. Do these very low yields prevent the species positioned at the end of the chain from becoming very abundant?"

For Rational Exploitation: How Mitigate This Problem?

There is a way to exploit some of the species situated near the lower end of the food chain: for example, the herbivorous zooplanktons. Although the zooplanktons are present in extremely vast quantities, they are distributed in a very diffuse manner throughout the ocean, and collecting them requires filtration of considerable volumes of water, making this type of exploitation prohibitive; the more so, since the market value of zooplankton could not be very high, in that it is a product that must be transformed into a powder or a butter.

Another way to compensate for the very poor yields of the natural marine food chains is aquiculture. For certain species (trout, mussels, etc...), it is a very ancient practice, but it is only recently that aquiculture has become the object of a major scientific research effort. The main problem is that of reproduction. It is very difficult in most cases to induce exploitable marine species to reproduce in a controlled environment.

One of the objectives of aquiculture is therefore to control the laying of eggs and to raise the young fry only to a size large enough to enable it to cope with the hazards of a natural environment. This type of study is being carried out on the jawfish at the Abidjan CRO. Another objective of aquiculture can be the fattening of the young to a marketable size. Feed must be manufactured for this purpose, to achieve optimum growth at minimum operating cost. An effort of this kind has been carried out, still on jawfish, at Grand-Lahou and at Dabou. A project of exploitation of jawfish culture by small enterprises is about to go under way, financed in part by the Central Bank for Economic Cooperation.

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CBO: 5200

FISHERIES DEPARTMENT FAILS TO USE DEVELOPMENT FUNDS

Nairobi DAILY NATION in English 27 Aug 80 p 5

[Text]

OFFICERS of the Fisheries Department of the Ministry of Environment and Natural Resources have been blasted for the delay in implementing development projects.

Environment and Natural Resources Minister Andrew Omanga said the department had spent only 30 per cent of development funds during the seven-year period since 1973.

Mr. Omanga expressed dissatisfaction at the department's performance, particularly regarding the implementation of projects for which Parliament had granted the required funds.

The Minister said this in a speech read on his behalf by one of his Assistant Ministers, Mr. Philip Leskey, at the official opening of a three-day conference for senior fisheries officers. The conference is being held at the Government Training Institute, Mombasa.

Mr. Omanga said a recent analysis revealed that only 27 per cent of the 1974/75 and 1977/78 financial allocations were spent.

Priority

Describing this as a "startling revelation", the Minister asked the officers what excuse they had for putting forward development proposals year after year. He said the Ministry had no justification in seeking funds for fisheries development "when, in fact, we are not able to utilise the funds we have continually claimed should be given priority."

Mr. Omanga said the department should have established more fishing landing centres along the shores of Lakes Victoria, Turkana, Naivasha and Hararge.

"Only 15 per cent of the total allocation for equipment is utilised annually although such equipment is required for research and boat building yards and workshops," the Minister said.

He cited several projects in North and South Coast and the Mombasa areas which should have been accomplished. These, he said, included full fledged fisheries stations at Kisingiri, Faza, Kiunga, Msambweni and Vanga.

Mr. Omanga expressed disappointment that even funds allocated by the British Government under the Special Rural Development Programme are not used until the programmes wound up on July 30, 1977.

—KNA

SEYCHELLES LOOKS SEAWARDS FOR A NEW PARADISE

Salisbury THE HERALD in English 9 Sep 80 p 4

[Article by Peyton Johnson]

[Text]

THE physical splendour of this group of 100 islands strung out across 610 000 square kilometres of the Indian Ocean is almost too much for the senses.

Beaches with sand so white it hurts the eyes, most deserted and none crowded, ring the islands. Over the coral reefs the waters are so clear you can sort out differing schools and individual fish until your eye tires of their changing colours.

Despite the islands' proximity to the Equator, the climate is healthy and never too hot. Diseases such as malaria and yellow fever which plague most tropical countries are unknown here. Storms are few.

Independent since 1976 the Seychelles changed hands between France and England a dozen times before finally being ceded to Britain under the Treaty of Paris in 1814.

The population reached 62 000 earlier this year. Of these 94 per cent live on the three main islands — Mahe, with 88 per cent, Praslin and La Digue. The total land area is a skimpy 273 square kilometres.

Tourism is by far the Seychelles' major money winner. Since the international airport opened in

1971 the number of tourists has risen every year. Since independence it has gone up dramatically to 73 000 in 1979.

It is luxury tourism. Port Victoria, the capital on Mahe, is a great distance from major centres. Air fares and accommodation are not cheap.

And yet, as the Government's National Development Plan for 1979-83 says: "Tourism is, and will continue to be, the main sector of the economy."

"It could hardly be otherwise," said Dr Maxim Ferrar, a jovial practising physician who is Minister of Development. "Tourism is practically our only way of earning significant amounts of foreign exchange."

ISOLATION

Throughout its 210 years of history sheer isolation has been the Seychelles' principal dilemma. Until the airport opened there were no regular air services from anywhere. Even today there are no regular shipping services. Almost all goods, including two-thirds of the food, with the exception of fish, have to be imported.

The Seychellois, every one of whom was born within sight and sound of the Indian Ocean, more naturally look to the sea

for their future. The islands are already self-sufficient in fish and there is great potential for increasing exports.

Dr Ferrar said: "The sea has always been our greatest blessing. We must exploit it much more systematically and intelligently in the future."

The Seychellois eat more fish per capita than any other people and are good fishermen. The catch of 5 500 tonnes a year could be expanded, say experts to 10 000 or 15 000 tonnes a year, even using traditional methods. A small fleet of modern bottom trawlers might well add another 7 000 tonnes.

Trygve Kroppstein, of Norway, the U.N. Food and Agriculture Organisation's fisheries adviser to the Government, believes fisheries development can more than offset the difficulties bedevilling agriculture.

The introduction over the past few years of the new Exclusive Economic Zones, or EEZs, that extend a nation's jurisdiction over its offshore waters up to 200 nautical miles out to sea is a bonanza for the Seychelles.

The Seychelles' EEZ is one of the world's biggest, covering over a million square kilometres.

In 1979, the first year

in which the Government began licensing foreign boats for fishing in the Republic's waters, the Seychelles earned more than U.S.\$1 million in fees. This year's licensing fees are expected to top U.S.\$1.5 million. For a nation of just 67 000 citizens, this is no small figure. And it is sure to grow.

Tuna potential alone in Seychelles waters is estimated at 40 000 tonnes a year. Only a few hundred tonnes a year are caught now. The Japanese and the South Koreans are particularly interested in fishing Seychelles tuna.

Eventually, Mr Kroepeken said, the locals themselves could probably catch and put on the international market up to 15 000 or 20 000 tonnes of first-class tuna. "To do this, though," he added, "they are going to need outside help for a long time to come."

ACADEMIC

Port Victoria is now no longer the sleepy, if charming, colonial town it was just a few years ago. Dr Ferrari was asked if he thought all this scramble for development was worth it. Why worry in paradise?

"For the rich handful, yes, the Seychelles once were a paradise," he said. "For the poor majority, never. Anyhow, that question has become academic. Once we opened the airport we had no choice but to join the race, the rat race if you like. There's no turning back now. The 20th century is finally upon us."

CNSG: 5200

FISHERIES RESEARCH IN TERRITORIAL WATERS

Victoria NATION in En. sh 20 Aug 80 p 2

[Text] The French research vessel, the Coriolis, is presently in Seychelles on a six-week programme of research which will evaluate stocks of fish in Seychelles waters and is a followup of a similar research cruise made by the Coriolis in waters around Mahe, the Amirantes and the outer islands in October 1979. Observers from the Fisheries Division will accompany the vessel and will participate fully in all research activities.

Of total length 37.5 metres and gross tonnage 460 tonnes, Coriolis has two recently renovated laboratories fitted with latest sophisticated acoustic equipment including an echointegrator and computer. The vessel can undertake various methods of fishing. Fishing gear on board includes a 'biukiami' which is a Japanese-designed liftnet, a pelagic trawl which fishes in mid-water, a bottom or demersal trawl, and also a deep-water lobster trawl.

A team of scientists from the research institute ORSTOM and headed by Monsieur E. Marchal, joined the vessel in Seychelles and will carry out the program in two phases.

Phase 1

The first involves an acoustic estimation of the pelagic, especially the baitfish resources of the Mahe and Amirantes plateaux. Acoustic fish research is a modern method of fish estimation which is undergoing rapid development. In brief terms, various echosounders are used to detect fish in the path of the vessel. These directions are sorted and analysed by an echo integrator and computer such that the actual quantity of fish passing beneath the vessel can be estimated. Sample trawl hauls are made on important detections and information is obtained on actual species present.

The acoustic techniques gives a good indication of quantities of various pelagic and bait fishes present and is especially relevant in areas where fishing is at an early stage of development and information is not available from other more direct sources.

The research vessel will be closely allied to SOGET and information on baitfish concentrations will be passed immediately to a tuna boat for investigation.

This phase of the programme lasts only 17 days as the equipment has to be dismantled and flown to identical survey being undertaken on the West African coast.

Phase 2

The second phase involves an investigation of the demersal fish stocks on the Plateau. The survey differs from other previous ones in that the investigation will be more broadly massed and involves a study of the sea bottom and its effect upon fish stocks.

Certain fishes are closely associated with the topography of the seabed and also other marine fauna such as invertebrates. The distribution of such fishes would be studied and the effect of disturbing their habitat assessed. An interesting aspect of this research is a survey of deep-water prawn and shrimp stocks.

Most of the trawlable areas of the Seychelles are in waters of depth 35-80 metres and catches of crustaceae at these depths have been found to be negligible. However, it is suspected that an area is available on the east side of the Mahe Plateau of depth 600 metres. On the East African coast such areas have yielded commercial catches of deepwater lobsters and it is hoped that similar catches can be made in our waters.

The programme forms part of the Franco-Seychellois co-operation in the fishing industry.

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BRIEFS

EC FISH POLICIES--Denmark will probably be faced with the problem of having to block the adoption of mutual EC fish policies because there is still no sign of a satisfactory solution to the problem of quotas. Agricultural and Fisheries Minister Poul Dalsager earlier made it clear that Denmark, in any case, would not hesitate to use strong measures if other countries with large fishing interests would not agree to a reasonable arrangement which would also be acceptable to the Danish government. A meeting of fisheries ministers will open in Luxembourg on Monday, which will be the beginning of a long series of negotiations--but there is no movement with respect to positions. On the contrary, it looks like the Sperling case--despite last week's EC court decision--will again become a Danish/British issue, which could make it difficult to find a solution to the fishing quotas. EC commission experts are now in the process of determining fishing quotas for 1980. The commission feels that based on biologists' warning of declining fish stocks it will be necessary to drastically reduce the maximum quotas, not least with respect to *Gadus callarias*, *Gadus poutassou*, pollack and mackerel. Biologists warn that the North Sea cod quota should only be about 200,000 tons, compared to 240-260,000 tons last year. Denmark's position is that last year's quota should be maintained. [Text] [Copenhagen BERLINGSKE TIDENDE in Danish 17 Jul 80 p 10]

FAEROES' FIN WHALE BAN--The Faeroese government has informed Danish authorities there will be no fin whaling in Faeroese waters this season. The reason for the ban is that a Faeroese whaler illegally hunted fin whales for three years. The International Whaling Commission, of which Denmark is a member, has issued a zero fin whale quota in the area of the Faeroes and Western Norway the last five years. [Text] [Copenhagen BERLINGSKE TIDENDE in Danish 17 Jul 80 p 1]

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